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CONTENTS AND SUBJECT INDEX

Hypersensitiveness to Cold with Local and Systemic Manifestations of a Histamine-like Character. Bayard T. Horton, M.D.; George E. Brown, M.D., and Grace M. Roth, B.S., Rochester, Minn. . . 1263

Discussed by Drs. Finkelman, Leake, Tenney, Nathanson and Horton.

Chronic Endemic Dental Fluorosis (Mottled Enamel). H. T. Dean, D.D.S., Washington, D. C. 1269

Discussed by Drs. Jordan, Osborn, Bristol and Dean.

The Therapeutic Use of Helium. Alvan L. Barach, M.D., New York 1273

Discussed by Drs. Rackemann, Maytum, Kernan, Lahey, Kerr and Barach.

Present Status of Dietary Regimens in Urinary Infections. Anson L. Clark, M.D., Oklahoma City . . 1280

Discussed by Drs. Braasch, Chute, Higgins, Ormond and Clark.

Brodie's Abscess of Radius, Due to Typhoid. William B. Marbury, M.D., and Henry L. Peckham, M.D., Washington, D. C. 1284

Adrenal Virilism. William Saphir, M.D., and Morris L. Parker, M.D., Chicago 1286

The Treatment of Large Pulmonary Abscesses. Clarence E. Bird, M.D., Louisville, Ky. 1288

Discussed by Drs. Blalock, Salatich and Bird.

Rôle of Syphilis of the Nervous System in the Production of Mental Disease. Merrill Moore, M.D., and H. Houston Merritt, M.D., Boston 1292

Internal Hernia Following Round Ligament Suspension. M. A. Michael, M.D., Philadelphia . . 1293

Fibrositis. W. S. C. Copeman, M.D., London 1295

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Xerostomia from X-Ray Treatment. S. S. Greenbaum, M.D., and Henry Tumen, M.D., Philadelphia . . . 1297

Anaphylaxis Due to Sodium Morrhuate. Kenneth M. Lewis, M.D., New York 1298

SPECIAL ARTICLE

The Pharmacopeia and the Physician: The Use of Cathartics. Oscar W. Bethea, M.D., New Orleans 1298

COUNCIL ON PHYSICAL THERAPY 1301

COUNCIL ON PHARMACY AND CHEMISTRY 1302

COUNCIL ON FOODS 1303

EDITORIALS

Accidental Burns in Children . . 1304

The British Medical Association and the Voluntary Hospitals 1304

Loss of Protein During Fasting . 1306

CURRENT COMMENT

Cardiovascular-Renal Diseases . . 1306

BUREAU OF LEGAL MEDICINE AND LEGISLATION 1331

(Subject Index on next page)

ASSOCIATION NEWS 1307

A.M.A. SESSION • ATLANTIC CITY, N. J. • JUNE 7-11, 1937

A SYMPOSIUM on UROLOGY

The October Number of the *"Surgical Clinics of North America"* is highly clinical, unusually practical. In records the work being done at the Johns Hopkins University and Hospital and its associated specializing Institutes.

You will find the *10-Clinic Symposium on Urology* particularly helpful in daily practice. It comes from the great Brady Urological Institute, and contains helpful clinics on the early symptomatology and diagnosis of renal and ureteral disease, on calculus, management of trauma of kidney, on preoperative and postoperative care, on hydronephrosis and pyonephrosis, on the diagnosis and treatment of the neurological bladder, on carcinoma of prostate, including nonsurgical treatment.

Each one of these clinics is given in detail; tests are explained and interpreted; technic is given—and the Symposium alone contains *52 instructive illustrations.*

But this Symposium, mind you, is *only part* of the October Number. In addition, there are *11 other fine clinics*—all from Johns Hopkins. They include the Monday Afternoon Obstetric Clinic, Nerve Injuries Complicating Fractures, Gastric Syphilis, Surgery of Bile Tract, Treatment of Ocular Burns, both Thermal and Chemical, Primary Dysmenorrhea, Lung Carcinoma, Giant-Cell Tumor, Treatment of Tuberculosis of Spine in Children, Postoperative Thrombosis, and Melanoma.

Yes, this is an unusually practical number, recording actual experience with a great wealth of clinical material at one of the most important medical centers of the United States.

Complete Contents in SAUNDERS ADVERTISEMENT—Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics

Acid, boric, as bacteriostatic agent....ab-1343
mandelic, use in pyelitis, etc....*1280; 1327
Actinomycosis, roentgen treatment....ab-1349
Addison's Disease, arthropathies in....ab-1350
Adrenal virilism *1286
Allegheny County Medical Society graduate courses 1310
Amenorrhea and cervical stenosis....1325
American Pharmaceutical Association, recipe book 1327
Aminopyrine, effect on blood cells....ab-1333
effect on blood-forming organs....ab-1343
Amyloidosis in gonorrheal endocarditis..ab-1341
Anatomy, preparing durable specimens..ab-1335
Anemia, macrocytic, in bowel lesions....ab-1336
pernicious, "depepsinized" gastric juice for ab-1333
Anesthesia, *trichloroethylene 1302
of thoracic chain....ab-1346
Angina, agranulocytic, after aminopyrine.ab-1333
Anthelmintics as provoking diagnosis....1327
Anthrax, ozone treatment....ab-1347
Antigens, bacterial, Krueger's method for..1326
Arthritis, complement in blood serum in mud therapy ab-1347
eosinophils in, under colloidal sulfur treatment ab-1347
infectious, climatic care....1323
vertebral, cerebrospinal fluid in....ab-1346
Association News....1307
Association of American Medical Colleges..1311
Asthma, treatment, helium....*1275
Automobiles, causes of road accidents....1313
Bacillus coli; lactis-aerogenes, effect of boric acid ab-1343
Barcroft, Sir Joseph, lectures by....1307
Billings Lecture 1307
Bishop tendon tucker, Peters modification..1327
Blood cells, effect of aminopyrine on....ab-1333
forming organs, effect of toxic drugs..ab-1343
transfusion, continuous, in hemorrhage.ab-1343
Board Examinations....1327
Bones, abscess, Brodie's, due to typhoid...*1284
atrophy, localized 1326
Book Notices....1328
Books Received....Adv. Page 32
Brain, hemorrhages in new-born....ab-1349
Breath, garlic odor to....C-1321
British Medical Association and Voluntary Hospitals E-1304
Bronchiectasis, helium therapy....*1278
Bronchus, obstruction, helium for....*1277
tubercle bacilli in suppuration....1314
Bunts Lecture 1309
Bureau of Investigation....1320
Bureau of Legal Medicine and Legislation..1331
Burns, accidental, in children....E-1304
Cancer diagnosis, Klein reaction for....1315
Brooklyn, institute dedicated....1309
Cardiovascular-Renal Disease, constitutional factors in E-1306
Cataract, extraction with Kalt forceps....1327
Cathartics, use of....*1298
Christian, H. A., to give Billings Lecture..1307
Cold, hypersensitiveness to....*1263
Compensation of Physicians: limitation of actions; payment on account....Ml-1331
Constitution factors in cardiovascular-renal disease E-1306
Correspondence 1321
Cough, magnesium sulfate in....ab-1348
reactive chest application....1324
Council on Foods....1303
Council on Pharmacy and Chemistry....1302
Council on Physical Therapy....1301
Couvelaire, Professor, honored....1314
Crippled children, census, Maryland....1308
Deaths 1317
Dementia Praecox, fat feeding in....ab-1338
Diabetes, metabolism in malignancies....ab-1349
Diarrhea, raw apple treatment....ab-1338
Diet, ketogenic, in urinary infections....*1280
Diphtheria, treatment, sodium chloride..ab-1345
Drugs, only drug stores may sell, France..1314
Dysmenorrhea and cervical stenosis....1325
Eliason, E. L., appointed professor....1310
Embolism, cardiac ab-1338
Emergency Medical Relief Service abandoned, Pa. 1310
Emphysema, helium therapy....*1277
Encephalitis epidemic, virus (St. Louis type) ab-1340
Endamoeba histolytica, small variety....ab-1334
Endocarditis, fibroplastic parietal, with eosinophilia ab-1346
gonorrheal, with amyloidosis....ab-1341
Endolymphatic Duct ab-1336
Epilepsy, American League against....1311
Ergot in puerperium ab-1334
Erythrocyte diameters, measuring....ab-1344
Erythrol tetranitrate, given simultaneously with potassium thiocyanate....1325
Esophagus diverticula ab-1340
Euphthalmine as mydriatic....1326
Eye, artificial, length of use....1327
intra-ocular pain 1323
Face, war injuries, treatment....1311
Fallopian Tubes, retention of iodized oil.ab-1339
Fasting, protein lost during....E-1306
Fat feeding in schizophrenia....ab-1338
Fetus, head, pelvicephalography....1334
papyraceus 1324
Fever, recurrent, attacks in girl aged 14...1323
Fibrositis *1295
Fluorosis, chronic endemic dental....*1269
Foreign Letters....1311
Garlic odor to breath....C-1321
Gastro-enterology, International Society....1314
Gold, effect on blood forming organs....ab-1343
Hair, hirsutism, hypertrichosis in adrenal virilism *1286
hypertrichosis, xerostomia from x-ray treatment *1297
Health at Washington, D. C....1307
Heart disease, emboli....ab-1338
Helium, therapeutic use....*1273
Hemorrhage, continuous transfusion for.ab-1343
Hernia, internal, after round ligament suspension *1293
Hospital, maternity, liable for puerperal fever 1312
proprietary, indorsed, N. Y....1309
Voluntary Hospitals and B. M. A....E-1304
Impotence, treatment 1325
Indianapolis Medical Society new home...1308
Infants, new-born, intracranial hemorrhages in ab-1349
polyavitaminosis on fat-free dry milk.ab-1346
Infections, pyogenic, alcohol-glycerine treatment ab-1337
Influenza infection from ferret....ab-1344
Intestines lesions, macrocytic anemia in.ab-1336
parasites, anthelmintics provoke diagnosis.1327
Jaws, treatment of war wounds....1311
Klein Reaction for cancer....1315
Labor, determination ab-1347
dry, cervical dilatation in....ab-1333
pelvicephalography ab-1334
Larynx, obstructive conditions, helium for.*1277
Leukemias, roentgen treatment....ab-1349
Licensure of foreign graduates....1309; 1310
Lips, pseudocolloid 1326
Liver function, Ucko's test....ab-1347
insufficiency, International Congress of..1314
Louisiana State Medical Society courses...1308
Lungs, abscess, treatment....*1288
cancer, primary ab-1350
fibrosis, helium therapy....*1278
search for tubercle bacilli in suppuration.1314
Lymphatic System, adenopathy secondary to tongue cancer 1314
management of cervical metastatic epidermoid carcinoma ab-1340
Lymphogranuloma (Sternberg) ab-1350
Malaria, treatment, atabrine vs. quinine.ab-1343
Marriages 1317
Massachusetts Medical Society graduate courses 1308
Measles, immunization by normal blood.ab-1348
Mecholyl, no deleterious effect on pregnancy.1323
Medical Center, progress, Jersey City....1309
Medical Examinations and Licensure....1327
Medicine, organized, proposes to aid state social program, France....1313
Medicolegal Abstracts....1331
Meetings, Coming Meetings....1332
Menstruation, inquiry on "safe period"..C-1322
Mental Disease, rôle of neurosyphilis....*1292
Monilethrix ab-1350
Mouth, cancer, management....ab-1340
Murray, C. R., delivered Bunts Lecture...1309
Mydriatic for eyeground examinations....1326
Narcotic addiction, autogenous serotherapy ab-1337
entrapment of physician suspected of crime Ml-1332
National Committee on Maternal Health, inquiry on "safe period" by....C-1322
Neoarsphenamine, effect on blood-forming organs ab-1343
Nephritis, chronic, potassium thiocyanate injurious in 1325
toxic, after picric acid nasal spray....1322
Neuritis, gastric disorders in alcoholic polyneuritis ab-1346
Neurosyphilis, rôle in producing mental disease *1292
New and Nonofficial Remedies....1302
News 1307
Osteopathy, Lord Elibank heads "General Council" 1312
Ovary, adrenal cortex tissue found in....*1286
Papyraceus, fetus 1324
Pediatrics, Academy of....1307
Pelvicephalography ab-1334
Peptic Ulcer, treatment; danger of alkalosis.1323
treatment of gastroduodenal hemorrhage ab-1350
Pharmacopeia, U. S., and the physician...*1298
Pharmacy exhibit, Cleveland....1309
Physical Medicine, Academy of....1311
Pneumoconiosis, diagnosis of silicosis...ab-1335
Poliomyelitis, prevention, toxic nephritis after picric acid nasal spray....1322
serum treatment C-1321
Pollen antigens, preparation....1325
Potassium iodide detrimental to tuberculous 1323
thiocyanate, injurious in chronic nephritis.1325
Pregnancy, arthritis and....1323
Protein, loss during fasting....E-1306
Pseudocolloid of lips....1326
Puerperal Infection, liability of nursing home for contracting 1312
Puerperium, ergot in....ab-1334
Pyelitis, treatment, mandelic acid....1327
Pylorus stenosis (congenital), high right transverse abdominal incision in....ab-1342
Queries and Minor Notes....1322
Radio Broadcasts....1307
Radius, Brodie's abscess from typhoid....*1284
Rheumatic Fever, complement in blood serum in mud therapy....ab-1347
urinary porphyrin in....ab-1342
Ricketts, Howard T., memorial to....1311
Round Ligament suspension, internal hernia after *1293
"Salt cake," industrial hazard....1324
Scarlet Fever closes school, N. J....1309
Sclerema neonatorum, thyroxine for....ab-1348
Seborrhea, dermatitis 1324
Society Proceedings....1332
Sodium morrhuate, anaphylaxis due to...*1298
nitrite poisoning, fatal, England....1312
sulfate dust, industrial hazard....1324
Spine arthritis, spinal fluid in arthritis..ab-1346
intervertebral disks, changes after lumbar puncture ab-1345
State Board Examinations....1327
Sterility, hypospadias rarely cause of....1326
Stomach disorders in alcoholic polyneuritis ab-1346
Suicide, comprehensive study....1309
Surgery, early arising from bed after operations 1316
Sympathectomy, results of 1256 operations.1313
Syphilis control, training course....1308
Teeth, mottled enamel....*1269
Tetanus, vaccination in French army....1314
Thorax, reactive chest application....1324
Thrombophlebitis with induration....1326
Thrombosis, aortic and coronary....ab-1336
Tibia epiphysis, fracture through....ab-1339
Tick survey, Iowa....1308
Tongue cancer, adenopathy secondary to...1314
Tonics and Sedatives....Adv. Page 24
Toxemia, intestinal, castor oil for....ab-1342
Trachea, obstructive conditions, helium for.*1277
Trinitrophenol, nephritis after nasal spray.1322
Tri-State Medical Society....1310
Tubercle Bacilli, search for, in bronchopulmonary suppuration 1314
Tuberculosis and oil field gases....Ml-1331
potassium iodide detrimental to patient..1323
pulmonary, high carbohydrate diets in.ab-1335
sanatorium dedicated, West Va....1310
vaccines, testing ab-1345
Typhoid, Brodie's abscess of radius....*1284
University of Georgia new building....1307
Urinary Tract infections, ketogenic diet and mandelic acid for....*1280
Urine porphyrin in rheumatic fever....ab-1342
Uterus, cervical dilatation in dry labor..ab-1333
cervical stenosis in amenorrhea and dysmenorrhea 1325
hemorrhage (benign), irradiation for..ab-1341
ventrosuspension ab-1348
Utricular Duct ab-1336
Varicose Veins, sodium morrhuate allergy.*1298
Venereal Disease, survey, Wis....1310
Virilism, adrenal *1286
Vulpius, Oscar, death....1317
Xerostomia from x-ray treatment....*1297

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HYPERSENSITIVENESS TO COLD

WITH LOCAL AND SYSTEMIC MANIFESTATIONS OF A HISTAMINE-LIKE CHARACTER: ITS AMENABILITY TO TREATMENT

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AND
GRACE M. ROTH, B.S.
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Danger lurks at the bathing beach for those who are hypersensitive to cold, but the danger can be eliminated by adequate desensitization. We do not pretend that, scientifically, this is the most interesting implication of the present report; we do believe that now, with summer almost at hand, it is the most immediately applicable feature of our work.

The study represents a clinical and experimental investigation of twenty-two cases, seven of which have been previously reported, illustrating the various phases of hypersensitiveness to cold. This constitutes the entire group of such cases observed at the Mayo Clinic during the past ten years. The ages of these subjects ranged from 15 to 59 years. Eleven of the subjects were females and eleven were males. With few exceptions they appeared to be in good general health; some were even robust. One subject also had osteitis deformans and one a hyperfunctioning adenomatous goiter with hyperthyroidism. Routine general examinations and laboratory tests gave essentially negative results. The Wassermann reaction of the blood was negative in each instance.

These patients exhibited abnormal local and systemic reactions following exposure to cold, and the systemic reactions were so striking as to constitute a clinical entity. Symptoms had been present for from one month to thirty years and consisted, for the most part, of urticarial wheals over the face, neck and hands and occasionally over the feet, thighs and trunk. Urticarial manifestations invariably followed exposure to a cold wind, cold water or a cold environment. A number of the patients had swelling of the lips and one had dysphagia following ingestion of cold water or ice cream.

Of the twenty-two subjects, all manifested local reactions and fourteen, in addition, had well developed systemic reactions. Eleven of these fourteen subjects had attacks of syncope following exposure to cold, and some of them were unconscious for more than two hours. No convulsions had been observed. Nine of these eleven subjects had collapsed after swimming and four of them had had to be rescued from the water, two having been unconscious for more than an hour after being rescued.

Three of the eleven patients were particularly interesting. An attack of syncope was reproduced experimentally on one of them, a strong man aged 22, who was permitted to sit in a bath tub with the hands, legs and thighs immersed in water at 11 C. (51.8 F.) for four minutes. Shortly after leaving the room he collapsed. Three minutes later he recovered sufficiently to be able to walk. The second of the three patients, a man aged 52, had collapsed on the street while walking against a cold wind. The third, a healthy man aged 42, had partly walked and partly run a distance of four blocks against a cold wind, with the temperature at 30 degrees below zero, in order to catch a bus. He rode on the bus for a few blocks, got off and then walked about one block before going into a heated building. A few minutes after he entered the building his knees became weak and he collapsed; he was unconscious for about forty minutes. He vomited several times and was taken to a hospital, where he remained for a day. He did not recover his normal strength for about a week, and even then his stomach did not feel entirely normal. A year previously this patient had collapsed after swimming, but he had made a complete recovery from the systemic reaction in twenty-four hours.

These local and systemic reactions suggest those produced by injection of histamine or a histamine-like substance.[1] Our studies allow more than a speculative statement on the probable nature of these reactions. Physical agents such as cold probably permit the release of chemical substances from the tissue cells resulting from increased permeability. Histamine has been found in the normal skin of human beings, and Harris [2] has estimated the amount to be 10 mg. per kilogram of tissue, the exact amount varying somewhat for the different regions of the body. Histamine is a normal constituent of liver, gastric mucosa and skeletal muscle and is probably a widely distributed [3] constituent of all animal tissues. As a result of cold, it seems that histamine is released and that this, in addition to producing the usual urticarial changes locally, attains sufficient

Dr. Brown died, Nov. 28, 1935.

From the Division of Medicine, the Mayo Clinic (Dr. Brown).

Read before the Section on Pharmacology and Therapeutics at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Brown, G. E., and Horton, B. T.: A Clinical Syndrome Due to Cold, with Local and General Systemic Reactions Suggesting Those Obtained by Histamine: Study II. Tr. A. Am. Physicians **47**: 353-357, 1932.

2. Harris, K. E.: Observations upon a Histamine-like Substance in Skin Extracts, Heart **14**: 161-176 (Dec.) 1927.

3. Lewis, Thomas, and Grant, R. T.: Vascular Reactions of the Skin to Injury: Part II. The Liberation of a Histamine-like Substance in Injured Skin; the Underlying Cause of Factitious Urticaria and of Wheals Produced by Burning; and Observations upon the Nervous Control of Certain Skin Reactions, Heart **11**: 209-265 (May) 1924. Lewis, Thomas, and Harmer, I. M.: Vascular Reactions of the Skin to Injury: Part IX. Further Evidence of the Release of a Histamine-like Substance from the Injured Skin, ibid. **14**: 19-26 (April) 1927. Lewis, Thomas, and Love, W. S.: Vascular Reactions of the Skin to Injury: III. Some Effects of Freezing, of Cooling and of Warming, ibid. **13**: 27-60 (Aug.) 1926.

concentration in the general circulation to produce reactions in every way comparable to those obtained when it is injected into the body.

Local and systemic reactions were reproduced by immersion of the hand in water at 8 C. for a period of six minutes (figs. 1 and 2). The local effects on the skin consisted of pallor during the period of exposure, followed by redness, swelling and increased local temperature on removal of the hand or exposed part from the cold environment. After a latent period of from three to six minutes a characteristic systemic reaction developed, consisting of flushing of the face, a sharp fall in blood pressure, a rise in pulse rate, a tendency to or the actual development of syncope and transitory recovery in from ten to fifteen minutes. If a tourniquet was applied so as to cut off the venous return from the hand or the supply of arterial blood to the hand before the hand was immersed in the cold water, and if the tourniquet was kept on for an additional period after removal of the hand from the cold environment, the systemic reactions did not occur so long as the tourniquet remained around the arm (fig. 3). When the tourniquet was then released the systemic reactions were more severe, frequently lasting three times as long as when the tourniquet was not used. The reaction occurred from one to two minutes after release of the tourniquet, whereas without the tourniquet in the average case the reaction occurred in from four to six minutes after removal of the extremity from the cold environment.

This observation is extremely important, for it seems to eliminate definitely a reflex basis for the systemic response. The procedure was repeated several different

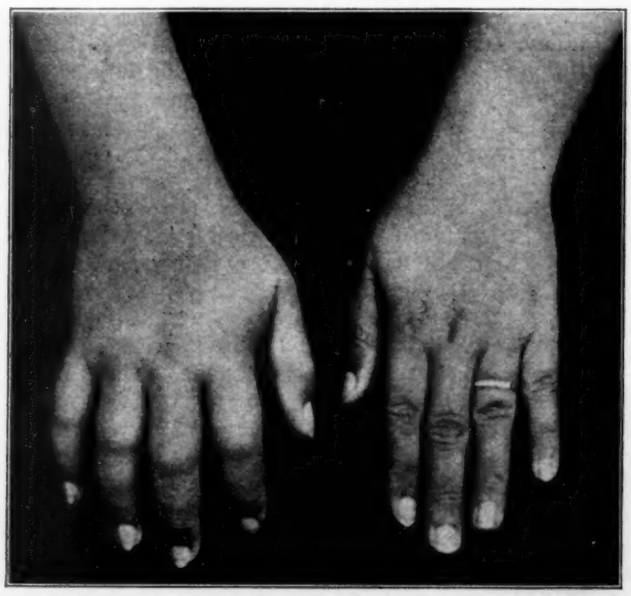

Fig. 1.—Appearance of the right hand of a woman, aged 26, after it had been immersed in water at 8 C. (46.4 F.) for six minutes. The hand was markedly swollen and the patient was unable to close it.

times on five different subjects and with identical results. These observations have been confirmed by Harris, Lewis and Vaughan [4] and by Bray.[5] It suggests that a chemical substance which caused a histamine-like reaction was produced in the skin following exposure to cold and that an accumulation of this substance in the hand in sufficient concentration, when suddenly released into the general circulation, produced a greatly exaggerated systemic reaction. Local swelling of the hand can be reproduced by the intra-arterial injection of

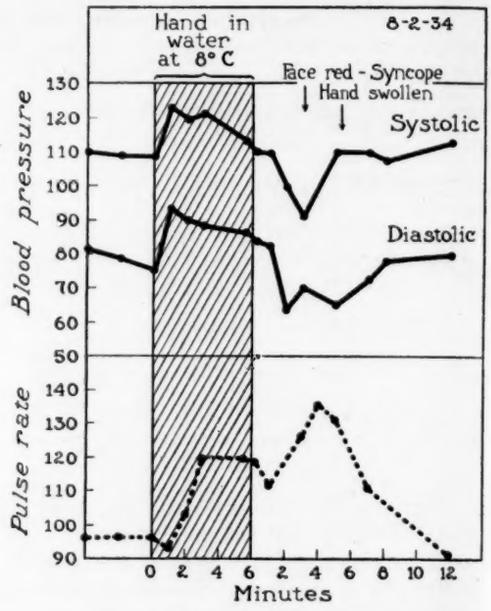

Fig. 2 (same patient as in fig. 1).—Histamine-like systemic reaction following immersion of hand in water at 8 C. for six minutes.

from 0.1 to 0.15 mg. of histamine; the swelling is distal to the point of injection. The systemic reaction can be accurately reproduced by the subcutaneous administration of 0.5 mg. of histamine. Eustis [6] was the first to produce urticaria experimentally by means of histamine.

Patients are unable to distinguish between the systemic manifestations produced by immersion of the hand in cold water and those produced by subcutaneous injection of histamine. Obviously it is not always possible to pursue an investigation to an end point when the subject investigated is a human being: on six subjects, however, the exact clinical syndrome that followed immersion of the hand in cold water was reproduced by administration of known amounts of histamine. Changes in surface temperature were studied. In one case, that of a woman aged 45, a severe reaction was induced following immersion of the hand in cold water, and at the height of the systemic reaction the temperature of the cheek was 34.4 C., an increase of 4.2 degrees C. Later in the same case the surface temperature of the cheek was 35.3 C., an increase of 3.9 degrees C. following subcutaneous administration of 0.35 mg. of histamine.

Electrocardiographic studies were carried out in two cases before, during and after the general reaction. At the height of the systemic reaction there was an inverted T wave in lead 3 which was absent during the period of control.

The response on the part of the gastric acids [7] is interesting in attempting estimation of the quantity of histamine-like substances liberated from the skin and

4. Harris, K. E.; Lewis, Thomas, and Vaughan, Janet M.: Haemoglobinuria and Urticaria from Cold Occurring Singly or in Combination; Observations Referring Especially to the Mechanism of Urticaria with Some Remarks upon Raynaud's Disease, Heart **14**: 305-336 (March) 1929.

5. Bray, G. W.: A Case of Physical Allergy: A Localized and Generalized Allergic Type of Reaction to Cold, J. Allergy **3**: 367-374 (May) 1932.

6. Eustis, Allan: Urticaria—An Experimental Lesion Produced by the Local Application of Beta-Imidazolyethylamine: Its Relation to Intestinal Toxemia, New Orleans M. & S. J. **66**: 730-735 (April) 1914.

7. Horton, B. T., and Brown, G. E.: Histamine-like Effects on Gastric Acidity Due to Cold, Proc. Staff Meet., Mayo Clin. **7**: 367-371 (June 22) 1932.

subcutaneous tissues of the exposed part. We have not seen similar reports in the literature. In one case, that of a woman aged 59, before the hand was immersed in water at 9.6 C. analysis of the gastric content disclosed no evidence of the presence of free hydrochloric acid and the total acidity was 20 when titrated with tenth normal solution of sodium hydroxide (fig. 4). No change in gastric acids was observed while the hand was in water. When the gastric secretion was removed at the height of the systemic reaction, the value for free hydrochloric acid was 54 and the total acidity was 66. Similar values were observed one year later in the same case on repetition of the same procedure. After the patient had completely recovered from this systemic reaction the values for gastric acids were: free hydrochloric acid, 0; total acidity, 38. After subcutaneous administration of 0.5 mg. of histamine, without exposure to cold, the value for free hydrochloric acid was 18 and the total acidity was 48 (fig. 5). In another case, that of a man aged 52, the value for free hydrochloric acid was 56 and the total acidity was 90 before the hand was immersed in cold water; at the height of the systemic reaction the value for free hydrochloric acid was 86 and for total acidity, 108. The response on the part of the gastric acids is of interest in estimating the quantity of histamine present. As is shown by our studies, greater quantities of gastric acids were obtained by the cold applications than by the administration of 0.5 mg. of histamine.

Unfortunately there are not available at present chemical methods of sufficient accuracy and sensitiveness to allow the exact quantitative estimation of the histamine-like substance in the blood during these studies. Until the chemical demonstration has been made, it is impossible to determine the chemical nature of the substance that is responsible for this abnormal reaction to cold. The physiologic responses strongly suggest that the substance is similar to histamine, although attempts to isolate histamine or a histamine-like substance from the blood stream at the height of the systemic reaction thus far have been unsuccessful. Moreover, we have not been able to isolate histamine from the blood stream at the height of the systemic reaction produced by subcutaneous administration of 1 mg. of histamine.

TREATMENT

These patients are amenable to treatment. Systemic desensitization to cold can be accomplished by having the patient immerse a hand in water at 10 C. for from one to two minutes twice a day for from three to four weeks. This, we believe, is sufficient to immunize the average subject; even patients who had swelling of the lips and tongue following the eating of ice cream, in addition to local swelling of the hands and face from exposure to a cold environment, have obtained complete relief by this method of treatment. Also, by daily immersion of the hand in cool water, starting at 65 F. and decreasing in temperature to 45 F. for increasing periods, excellent results have been obtained. Of the twenty-two patients we have studied sixteen are completely well and five are improved. The remaining patient (case 4 in the table) did not receive treatment. Patients also can be desensitized to cold by subcutaneous administration of 0.1 mg. or less of histamine twice daily for from two to three weeks.

Hypersensitiveness to Cold

			Local Reaction		Systemic Reaction			
					Drop in Blood Pressure, Flushing Face, and so Forth	Syncope		
Case	Age, Years	Sex	Duration, Years	Involvement		Cold Weather	Swimming	Results
1	49	♀	2 to 3	Hands	+	..	..	Well
2	22	♂	¼	Body, arms, legs	+	..	+	Well
3	15	♂	3	Face, back, arms	+	..	+	Well
4	32	♀	6	Entire body	+	..	+*	Died (alcoholism, 6 years ago)
5	57	♀	30	Thighs, arms	+	..	+	Well
6	30	♂	2	Entire body	+	..	+	Well
7	26	♀	14	Hands, lips	+	..	+	Well
8	45	♂	4	Arms, legs, face, neck, trunk	+	..	+*	Well
9	45	♀	3	Hands, feet	+	..	..	Well
10	59	♀	25 3 1	Dysphagia Urticaria—hands, face Bronchial constriction	+	+	..	"Much improved"
11	42	♂	1	Hands, body, tongue	+	+	+*	Improved
12	56	♂	1 7	Neck, face, hands Ears	..	..	..	Well
13	20	♀	2	Hands, face	..	..	..	Well
14	19	♀	12	Arms, body, face, legs	+	+	+*	"Improved"
15	39	♂	1/12	Fingers, ears	..	..	..	Well (spontaneous recovery)
16	36	♂	3	Hands, ears	..	..	..	Well
17	36	♀	2	Toes, hands, face, lips, ears	..	..	..	Well (spontaneous recovery)
18	57	♀	1	Hands	+†	..	..	Well
19	52	♂	15	Feet, face, hands	+	+	..	Well
20	25	♂	19	Face, hands	..	..	..	"Seventy per cent improvement"
21	49	♂	5	Hands, feet, ears, forehead	..	..	..	Well
22	42	♀	4	Hands, arms, legs	..	..	..	"Ninety per cent improved"

* Rescued from the water.
† Paradoxical reaction with hemoglobinuria.

THE LITERATURE

We have been unable to find a review of the relevant literature in English. For the benefit of students of the subject we herewith furnish the results of our review. References to seven or eight articles of which we know, but which we have not been able to obtain for actual reading, are not included.

Urticaria attributable to cold has been recognized since 1866. At that time Bourdon [8] reported the case

8. Bourdon: Note sur l'urticaire intermittente, Bull. et mém. Soc. méd. d. hôp. de Paris 3: 259-262, 1866.

of a woman, aged 44, apparently in good health, who suddenly, before breakfast, had a feeling of heat and swelling of the neck and complained of malaise and great anxiety. The involved skin was the site of whitened elevations accompanied by violent pruritus. Syncope developed. Under the influence of poultices to the lower extremities and administration of syrup of ether, the malaise and anxiety diminished while the urticaria and pruritus manifested themselves on the trunk and extremities. However, Bourdon stated that on the application of cold lotions to the affected parts, at the request of the patient, the signs and symptoms recurred, including "half" syncope. He hurriedly stopped the refrigerating applications and from that moment the patient's symptoms disappeared. The entire clinical syndrome lasted approximately an hour. It is difficult from this description to know whether or not he was actually describing a case of cold allergy with systemic manifestations. Béhier [9] stated that he had been subject to urticaria induced by cold for a number of years and that if he stayed in cold water for too long a time syncope would result. However, he did not report data on an actual instance of syncope having affected him after bathing in cold water. Blachez [10] in 1872 gave the first classic description of urticaria attributable to cold. He described the case of a woman, aged 45, who had swelling of the face, hands, neck and feet following exposure to cold. In addition, on one occasion she noted severe burning pain along the course of the esophagus and in the throat following the swallowing of iced food. When the hands and feet were swollen she had marked difficulty in flexing the fingers and could walk only with great effort. The clinical syndrome that he described lasted approximately thirty minutes.

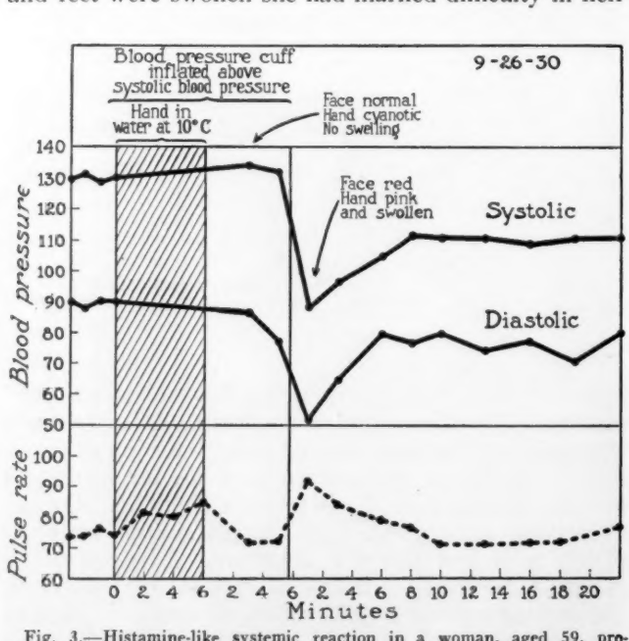

Fig. 3.—Histamine-like systemic reaction in a woman, aged 59, produced by immersion of the hand in water at 10 C. (50 F.) for six minutes. The blood pressure cuff around the arm was inflated to more than systolic blood pressure before the hand was immersed in water and was kept inflated for an additional five and one-half minutes after the hand was taken out of the water. Swelling of the hand did not occur during this period. One and a half minutes after the cuff was released there was a sharp drop in blood pressure and a rise in pulse rate with an unusually severe systemic response.

Additional reports of single cases of urticaria attributable to cold, with only local manifestations, were published in the next forty years by Münchmeyer,[11] Ungar,[12] Schütz,[13] Ward,[14] Fraser [15] and Hewlett.[16]

Netter [17] in 1921 and Kleeberg [18] and Wagner [19] in 1922 also reported single cases. In the latter year Widal, Abrami and Lermoyez [20] reported the case of a healthy woman, aged 37, who had urticaria on the face, neck and hands as well as on the entire body after taking a cold bath; these manifestations were followed by general malaise which undoubtedly represented a mild, systemic reaction from undue exposure to cold.[21] Duke in 1924 described the case of a physician, aged 43, who had complained of hives of five months' duration. The patient noticed that exposure of his face to cold wind would cause swelling of the tongue, cheeks, eyelids and ears, with associated burning, itching and redness of the skin, excessive lacrimation, itching of the eyes, sneezing and cough. The drinking of cold water caused pain in the mouth, throat, esophagus and stomach. On one occasion, when he had been exposed more than usual to cold, he had a severe constitutional reaction which caused total collapse and required epinephrine for relief. No statement was made as to whether or not this followed swimming.

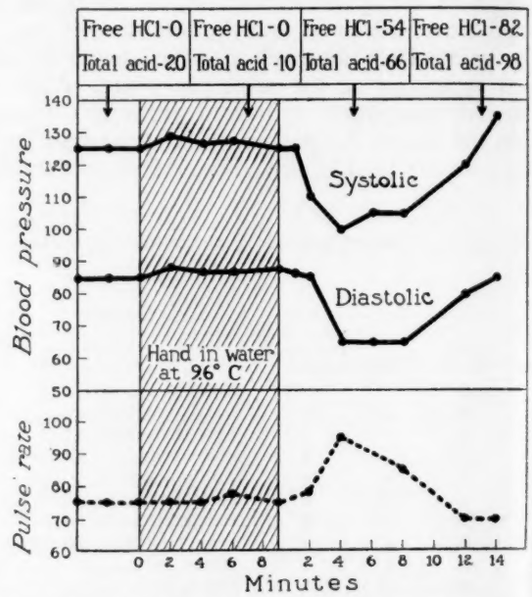

Fig. 4 (same patient as in fig. 3).—Histamine-like systemic reaction produced by immersion of hand in water at 9.6 C. (49.3 F.) for a period of nine minutes. Determinations of gastric acidity are shown and the usual drop in blood pressure and rise in pulse rate are illustrated.

9. Béhier, in discussion on Bourdon,[8] p. 262.
10. Blachez: Observation d'urticaire, Bull. et mém. Soc. méd. d. hôp. de Paris **9**: 270-271, 1872.
11. Münchmeyer, E.: Einiges über die Urticaria, Berl. klin. Wchnschr. **12**: 268-272 (May 17) 1875.
12. Ungar: VII. Verhandlungen ärztlicher Gesellschaften, Berl. klin. Wchnschr. **12**: 718 (Nov. 28) 1881.
13. Schütz, Joseph: Mittheilungen über eine häufiger vorkommonde Form von Urticaria chronica recidivat, München. med. Wchnschr. **5**: 798-802 (Aug. 20) 1895.
14. Ward, S. B.: Erythema and Urticaria, with a Condition Resembling Angeioneurotic Oedema, Caused Only by Exposure to the Sun's Rays, New York M. J. **81**: 742-743 (April 15) 1905.
15. Fraser, T. R.: Urticaria a frigore, Tr. Medico-Chir. Soc. Edinburgh. **25**: 90-92, 1906.
16. Hewlett, A. W.: Active Hyperemia Following Local Exposure to Cold, Arch. Int. Med. **11**: 507-511 (May) 1913.
17. Netter: M.: Discussion, Bull. et mém. Soc. méd. d. hôp. de Paris **1**: 339 (March 11) 1921.
18. Kleeberg: Kälteurtikaria, Berl. klin. Wchnschr. **58**: 581 (May 30) 1921.
19. Wagner, Richard: Wind- und Kälteurtikaria bei Lues hereditaria, Dermat. Wchnschr. **74**: 489-491 (May 27) 1922.
20. Widal, Fernand; Abrami, Pierre, and Lermoyez, Jacques: Anaphylaxie et idiosyncrasie, Presse méd. **30**: 189-193 (March 4) 1922.
21. Duke, W. W.: Urticaria Caused Specifically by the Action of Physical Agents (Light, Cold, Heat, Freezing, Burns, Mechanical Irritation, and Physical and Mental Exertion), J. A. M. A. **83**: 3-9 (July 5) 1924; Asthma, Hay Fever, Urticaria and Allied Manifestations of Allergy, St. Louis, C. V. Mosby Company, 1925.

In the next three years, additional cases of local reaction following exposure to cold were reported by Krakauer,[22] by Podesta [23] (two cases) and by Freund [24] (three cases). Joltrain, Morat and Ley [25] in 1927 reported a case in which there was both a local and a systemic reaction. In 1927 one of us [26] reported two cases in which local and systemic symptoms of hypersensitiveness to cold were exhibited by the patients. The systemic reactions were so striking as to constitute a clinical entity which was first fully described at that time.

One of these two subjects, apparently a healthy man aged 22, had first consulted us in November 1925. At that time he complained of tingling and burning sensations of the body when exposed to cold. These symptoms had been present for three months. His first attack of urticaria had developed after he had been swimming. He felt weak when he came out of the water and fainted on his way to the dressing room. We have not found in the literature an earlier report of syncope following swimming. Report of an additional case with a local reaction was given by Watrin [27] in 1927. In the same year Gougerot, Peyre, Moutet and Bourdillon [28] reported the case of a man, aged 39, who had both local and systemic manifestations following exposure to cold. Ravaut,[29] in discussing this report, stated that he had observed two subjects who had generalized urticaria following exposure to cold. Jadassohn and Schaaf [30] in 1928 reported the cases of a brother and sister on whom wheals formed following exposure to cold and in whom the urticaria was chiefly confined to the hands and face. Lehner [31] in February 1929 reported a case concerning a man, aged 23, who was hypersensitive to cold and collapsed after being in swimming. He had to be rescued from the water. A little later the same year Harris, Lewis and Vaughan [4] reported the case of a man, aged 64, who had had a definite systemic reaction earlier in life following swimming. Syncope, however, had not occurred. Five months later, in 1929, two of us [32] reported four additional cases; the patients were a boy aged 15 years, a woman aged 32, a woman aged 57 and a man aged 30, all of whom had had unusually severe local and systemic reactions after being in swimming. Syncope had resulted in each instance and one of the subjects was unconscious for more than an hour. Another of the four subjects had to be rescued from the water. Additional reports of cases in the same year were made by Perutz, Brugel and Grünfeld [33] (two cases) and Pasteur Vallery-Radot and Rouquès [34] (two cases); in one of the latter two cases there was also a systemic reaction.

Reports of single cases, with only local reactions, by Schmidt-Labaume [35] and by Haxthausen [36] appeared in the literature for 1930. Covisa and Prieto [37] reported one case in which there was a local reaction and an additional case in which both local and systemic reactions occurred.

Reports of single cases in which there were local manifestations were recorded in 1931 by Blackford [38] and by Pasteur Vallery-Radot and Blamoutier.[39] Bray,[5] about the same time, gave an unusually interesting report, with experimental data, concerning a boy aged 8 years who had local and systemic reactions. After the hand had been placed in water at a temperature of 45 F. for five minutes and then taken out, the usual local reaction of swelling and redness occurred. Five minutes later, some linear wheals appeared, spreading up the arm from the thickened edge toward the axilla, along the lymphatics, which became raised, red, thickened cords. This is the first time that any observer reported involvement of the lymphatics in this manner following such an experiment. We observed the same phenomenon in one of our own cases. Bray was able to desensitize his patient by administration of histamine, after which the systemic reaction entirely disappeared and only a slight local reaction occurred following exposure to cold. "Subcutaneous injections were given daily, the dose being increased from 0.1 mg. of histamine to 0.9 mg. by daily increases of 0.05 mg. The 0.9 mg. dose was repeated on four consecutive days and the dose of 1 mg. on five successive days. The total amount of histamine given was 16.2 mg. in twenty-five injections over twenty-seven days." At the completion of this treatment, placing the hand in water at 45 F. for five minutes was followed by a mild, local, urticarial reaction of the immersed part, but no general reaction was observed. Forty-five days later, when immersion of the hand was repeated in ice water for five minutes only, a mild local reaction was experienced, even slighter than that previously noted.

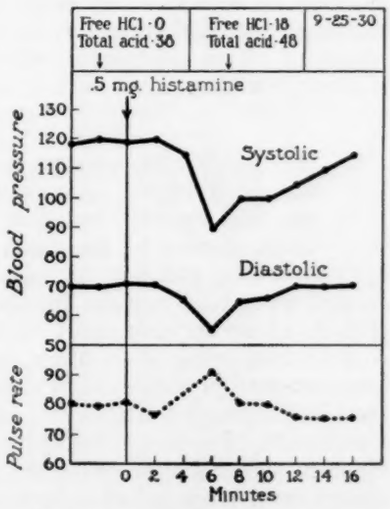

Fig. 5 (same patient as in fig. 3).—Changes in blood pressure, pulse rate and gastric acidity after the subcutaneous administration of 0.5 mg. of histamine without exposure to cold.

In 1932 additional cases in which marked systemic reactions and syncope occurred were reported by Bern-

22. Krakauer: Lupus erythematodes und Kälteurticaria, Zentralbl. f. Haut- u. Geschlechtskr. **18:** 754, 1926.
23. Podesta, G. B.: Sull' orticaria da freddo, Riforma méd. **42:** 1086-1088 (Nov. 15) 1926.
24. Freund, Ernst: Ueber Latenz und Spätraektion nach Kälteschädigung, Ztschr. f. d. ges. phys. Therap. **32:** 163-167, 1926-1927.
25. Joltrain, E.; Morat, D., and Ley, Jacques: Urticaire géante; observée chez un morphinomane à chaque tentative de sevrage: étude biologique et thérapeutique du phénomène, Presse méd. **2:** 1361-1363 (Nov. 9) 1927.
26. Horton, B. T.: Cold Allergy, Proc. Staff Meet., Mayo Clin. **2:** 276-278 (Nov. 23) 1927.
27. Watrin, M. J.: Présentation de malades, Bull. Soc. franç. de dermat. et de syph. **34:** 711-712 (July 8) 1927.
28. Gougerot, Peyre, Moutet and Bourdillon: Urticaire par le froid, Bull. Soc. franç. de dermat. et de syph. **34:** 321 (May) 1927.
29. Ravaut, M.: Discussion, Bull. Soc. franç. de dermat. et de syph. **34:** 321 (May) 1927.
30. Jadassohn, Werner, and Schaaf, Fritz: Kälteurticaria bei zwei Geschwistern, Dermat. Wchnschr. **86:** 565-566 (April 28) 1928.
31. Lehner, E.: Kälteuricaria, Klin. Wchnschr. **3:** 306-309 (Feb. 12) 1929.
32. Horton, B. T., and Brown, G. E.: Systemic Histamine-like Reactions in Allergy Due to Cold: A Report of Six Cases, Am. J. M. Sc. **178:** 191-202 (Aug.) 1929.
33. Perutz, Alfred; Brugel, Siegmund, and Grünfeld, Robert: Zur Pathogenese der Kälteurticaria, Klin. Wchnschr. **8:** 1999-2002 (Oct. 22) 1929.
34. Vallery-Radot, Pasteur, and Rouquès, Lucien: Urticaire par le froid, Paris méd. **73:** 365-370 (Oct. 26) 1929.
35. Schmidt-Labaume: Urticaria pigmentosa und Kälte-Urticaria, Zentralbl. f. Haut- u. Geschlechtskr. **33:** 536-537, 1930.
36. Haxthausen, Holger: Cold in Relation to Skin Diseases, Copenhagen, Levin & Munksgaard, 1930.
37. Covisa, J. S., and Prieto, J. G.: Contribucion al estudio de la urticaria al frio, Dermat. Wchnschr. **91:** 1188-1192 (Aug. 9) 1930.
38. Blackford, L. M.: Cold Urticaria and Histamine Allergy: Report of a Case, J. A. M. A. **96:** 525-526 (Feb. 14) 1931.
39. Vallery-Radot, Pasteur, and Blamoutier, Pierre: Urticaire par le froid: Traitement par l'accoutumance, Bull. et mém. Soc. méd. d. hôp. de Paris **2:** 1907-1911 (Dec. 11) 1931.

stein [40] (two cases), by Thannhauser,[41] by Grassl [42] (two cases), by Wilder,[43] by Urbach [44] (two cases) and by Klotz.[45] In each instance syncope had followed swimming and three of the nine subjects had to be rescued from the water. In addition, Bernstein, Klein [46] and Eiselberg [47] each reported two cases and Weiss [48] one case, in which reactions were only local.

Marquardt [49] in 1933 reported three cases in which there were only local reactions. Riehl and Resak [50] also reported one case of local and one of systemic reaction. Zum Busch,[51] Benjamins [52] (six cases, in five of which there were systemic reactions), Affolter [53] and Schlenker [54] all reported cases in which there were local as well as systemic reactions; in five instances syncope had occurred following swimming. One of the subjects had to be rescued from the water. Another patient collapsed in a physician's office.

Paul [55] in 1934 reported one case in which there were local manifestations. One of us [56] also reported a case in this year in which local and systemic manifestations occurred. In this case syncope had developed after swimming. Dubbs [57] and Levine [58] each reported a case in 1935 in which there were local manifestations. Kobacker and Parkhurst [59] reported the cases of three sisters in whom hypersensitiveness to cold developed following measles. They made spontaneous recovery.

SUMMARY

Of the twenty-two subjects in our series, fourteen had systemic reactions. Eleven of the fourteen subjects who had systemic reactions developed syncope; the syncope of nine of these eleven subjects occurred after swimming and four of the nine had to be rescued from the water. From the literature, we have gathered records of seventy-six cases of hypersensitiveness to cold (not including seven of our own cases which have been reported previously). Twenty-nine of these subjects had systemic reactions and eighteen of the twenty-nine developed syncope; the syncope of fifteen of these eighteen subjects appeared after swimming. Four of these fifteen subjects had to be rescued from the water. All together, this constitutes a series of twenty-four cases of syncope following swimming. Eight of these subjects had to be rescued from the water, thus emphasizing our original statement that "Danger lurks at the bathing beach for those who are hypersensitive to cold."

40. Bernstein, Fritz: Zur Frage des Badetodes, in discussion on Grassl's paper, München. med. Wchnschr. **2**: 1889-1890 (Nov. 18) 1932; Zum allergischen Charakter der Kälteurtikaria, Dermat. Ztschr. **64**: 242-246 (Aug.) 1932.

41. Thannhauser, S. J.: Zur Frage des Badetodes, München. med. Wchnschr. **2**: 1890 (Nov. 18) 1932.

42. Grassl: Zur Frage des Badetodes, München. med. Wchnschr. **2**: 1469-1470 (Sept. 9) 1932.

43. Wilder, J.: Kälteurtikaria mit schweren Allgemeinerscheinungen, Wien. klin. Wchnschr. **45**: 1458 (Nov. 18) 1932.

44. Urbach, E.: Discussion, Wien. klin. Wchnschr. **45**: 1458-1459 (Nov. 18) 1932.

45. Klotz, Rudolf: Zur Frage des Badetodes, München. med. Wchnschr. **2**: 1690-1691 (Oct. 14) 1932.

46. Klein, A. E.: Zur Frage der durch Wärme und Kälte ausgelösten Urtikaria, Dermat. Wchnschr. **95**: 1741-1746 (Dec. 3) 1932.

47. Eiselberg, Karl: Discussion, München. med. Wchnschr. **2**: 1691 (Oct. 14) 1932.

48. Weiss, Edward: Urticaria from Sensitiveness to Cold: Recovery Following Removal of a Pelvic Tumor, Arch. Dermat. & Syph. **25**: 823-824 (May) 1932.

49. Marquardt, F.: Untersuchungen bei Kälteurticaria und Urticaria factitia, Dermat. Wchnschr. **96**: 261-265 (Feb. 25) 1933.

50. Riehl, Gustav, and Resak, Erwin: Zur Pathogenese der Kälteurticaria und ihrer Zusammenhänge mit der paroxysmalen Hämoglobinurie, Ztschr. f. klin. Med. **124**: 29-40, 1933.

51. zum Busch, J. P.: Ueber plötzlichen Tod im kalten Bade, Deutsch. med. Wchnschr. **59**: 15 (Jan. 6) 1933.

52. Benjamins, C. E.: Zes Gevallen van Koude-Allergie, Nederl. tijdschr. v. geneesk. **77**: 4461-4469 (Sept. 30) 1933.

53. Affolter, Jean: Urticaire et syncope "a frigore," Schweiz. med. Wchnschr. **63**: 881-885 (Sept. 9) 1933.

54. Schlenker, Heinrich: Zur Behandlung der Kälte-Anaphylaxia, München. med. Wchnschr. **1**: 974 (June 23) 1933.

55. Paul, L. W.: Cold Allergy, J. A. M. A. **103**: 24 (July 7) 1934.

56. Horton, B. T.: Hypersensitivity to Cold: Local and Systemic Manifestations, Proc. Staff Meet., Mayo Clin. **9**: 477-480 (Aug. 8) 1934.

57. Dubbs, A. W.: Urticaria Caused by Cold, J. A. M. A. **104**: 116-117 (Jan. 12) 1935.

58. Levine, H. D.: Urticaria Due to Sensitivity to Cold: Survey of the Literature and Report of a Case, with Experimental Observations, Arch. Int. Med. **56**: 498-510 (Sept.) 1935.

59. Kobacker, J. L., and Parkhurst, H. J.: Cold Urticaria Following Measles in Three Sisters, J. A. M. A. **105**: 662 (Aug. 31) 1935.

ABSTRACT OF DISCUSSION

DR. ISIDORE FINKELMAN, Chicago: Previous reports on this work were that there is a momentary rise of blood pressure as a result of immersing the hand in very cold water. I am doing some work along this line, immersing the patient's hands in cold water and occasionally immersing the whole body in cold water. What I am interested in is whether these patients mentioned by Dr. Horton, who are hypersensitive to cold, have a lowering of blood pressure rather than a rise. I didn't clearly follow his remarks.

DR. CHAUNCEY D. LEAKE, San Francisco: Will the same type of reaction occur in the patients with the administration of acetylcholine? Further, is there any possibility that it may be linked with an enzymatic inhibition? Enzymes are sensitive to temperature changes. It is believed that acetylcholine is constantly being hydrolyzed in the body, so that a very high concentration is not present except under certain conditions. If its enzyme hydrolysis is inhibited, the concentration rises sufficiently to produce an effect. Similarly it may be that an enzyme factor may be involved in the presumed histamine effect.

DR. A. C. TENNEY, Chicago: The use of cold in ascertaining essential hypertension has been used a great deal in a diagnostic way. Is there any hookup between these observations and such cases of hypertension?

DR. MORRIS H. NATHANSON, Minneapolis: I should like to know whether Dr. Horton was able to reproduce the typical histamine headache in his experiments. As regards the effects of choline, the systemic action seems to be considerably different from that of histamine. The salivation and lacrimation following a subcutaneous injection of acetylbetamethylcholine are very marked. The gastric secretion is much less affected. It is probable that choline is more quickly destroyed than histamine. I have applied a tourniquet to an extremity and injected the choline compound below the tourniquet. When the tourniquet was released in about ten minutes the systemic reaction did not follow.

DR. BAYARD T. HORTON, Rochester, Minn.: Regarding Dr. Leake's question with reference to acetylcholine, I may say that our studies thus far do not indicate that acetylcholine plays any particular rôle in the production of the syndrome which I have just described. The stimulating influence of acetylcholine on gastric secretion is much less marked than that produced by histamine. Some subjects fail to display any alteration in gastric secretion on the administration of acetylcholine, whereas a normal response in gastric secretion invariably follows the administration of histamine. Then, too, one cannot reproduce the general systemic symptoms in subjects who are hypersensitive to cold by the administration of acetylcholine, whereas patients have been unable to distinguish between the systemic manifestations produced by the subcutaneous injection of histamine and those produced by immersion of the hand in cold water. We have failed to isolate histamine or histamine-like substances from the blood stream at the height of the systemic reaction produced by exposure to cold, although we have made repeated attempts to do so. Likewise, we have been unable to demonstrate histamine in the blood stream after the administration of known amounts of that substance, even when it has been given to the point of producing shock. We cannot, therefore, definitely say that this clinical syndrome is due to the liberation of histamine from the skin and other tissues following exposure to cold, although we can reproduce every single phase of the syndrome, both local and general, with the use of known amounts of histamine. This report should not be confused with the "cold test" for essential hypertension, which was recently described by Dr. E. A. Hines and the late Dr. George E. Brown. Their test was an outgrowth of this study. For their test the hand is placed in ice water (4 C.), just above the wrist, for a period of one minute. Readings of the blood pressure are taken at the end of thirty seconds and again at the end of sixty seconds. The maximal reading obtained while the

hand is in the ice water is taken as the index of the response. The changes in blood pressure occur promptly and are on a reflex vasomotor basis, whereas in our study of subjects hypersensitive to cold an interval of from three to six minutes elapses after the hand is removed from the cold water before a drop in blood pressure occurs. Furthermore, the tourniquet test, which prevents the return of blood from the exposed hand, definitely rules out a reflex basis for the changes in blood pressure and other systemic reactions which we have observed. Changes in blood pressure and systemic manifestations do not occur as long as the tourniquet is in place; however, they do occur promptly and in an exaggerated form when the tourniquet is released.

CHRONIC ENDEMIC DENTAL FLUOROSIS

(MOTTLED ENAMEL)

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The endemic hypoplasia of the permanent teeth known as chronic endemic dental fluorosis, or mottled enamel, is a water borne disease associated with the ingestion of toxic amounts of fluorides in the water used for cooking and drinking during the period of calcification of the affected teeth. The permanent teeth in particular are affected, although in areas of medium to marked severity the signs of mottled enamel are at times observable on certain of the deciduous teeth.

The causative factor of mottled enamel is operative during the period of tooth development. Hence the affected teeth erupt, showing the characteristic markings of the hypoplasia. Normally calcified teeth erupt showing a smooth, glossy, translucent structure, usually of a pale creamy white color. Teeth affected with mottled enamel, on the contrary, erupt showing a dull, chalky white appearance which in many instances later take on a characteristic brown stain, the frequency of brown stain increasing with age. In areas of marked severity, the surface of the teeth may in addition be marked by discrete or even confluent pitting. As the enamel forming organisms, the ameloblasts (ganoblasts), cease functioning at the time of the eruption of a tooth, mottled enamel is a permanent physical disfigurement. For purposes of classification, the various types [1] of the several degrees of severity have been divided into normal, questionable, very mild, mild, moderate, moderately severe, and severe.

References to this disease in the literature are comparatively recent, the first report being that of Eager [2] in 1901. The extensive investigations of McKay [3] published in 1916 pointed unmistakably to mottled enamel being a water borne disease. Final proof of the validity of this hypothesis was furnished by McKay [4] with the successful consummation of the Oakley (Idaho) experiment. Shortly after the publication of McKay's original report in 1916 the significance of this endemic defect of the teeth as a health problem was inferred by Smith,[5] who late in the same year called the attention of public health workers to the importance of mottled enamel as a hygienic question.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. (*a*) Dean, H. T.: Classification of Mottled Enamel Diagnosis, J. Am. Dent. A. **21:** 1421-1426 (Aug.) 1934. (*b*) Dean, H. T.; Dixon, R. M., and Cohen, C.: Mottled Enamel in Texas, Pub. Health Rep. **50:** 424-442 (March 29) 1935.

2. Eager, J. M.: Denti di Chiaie (Chiaie Teeth), Pub. Health Rep. **16:** 2576-2577 (Nov. 1) 1901.

3. McKay, F. S. in collaboration with Black, G. V.: An Investigation of Mottled Teeth, Dent. Cosmos **58:** 477-484 (May), 627-644 (June) 781-792 (July), 894-904 (Aug.) 1916.

4. McKay, F. S.: Mottled Enamel: The Prevention of Its Further Production Through a Change of the Water Supply at Oakley, Idaho, J. Am. Dent. A. **20:** 1137-1149 (July) 1933.

PREVALENCE

The distribution is world wide. In the United States there are about 335 endemic areas distributed among twenty-five states. Eighty-six per cent of these areas are located west of the Mississippi River, the most severely affected state being Texas.

In that portion of West Texas studied, a region about equal in square miles to the state of Pennsylvania, the causative factor of mottled enamel is operative over a vast district. A high percentage of the many thousands of children residing in this region during the period of calcification of the permanent teeth have developed, or are developing, mottled enamel. The ubiquity of the disease there is startling. Of the approximately 335 surveyed or reported endemic areas in the United States, ninety-four, or about 28 per cent, are found in Texas. Other states in which mottled enamel is known to constitute an important public health problem are Colorado, South Dakota and Arizona. East of the Allegheny Mountains a number of small communities located in the Atlantic coastal plain region of Virginia, North Carolina and South Carolina are affected.

Among the foreign countries the Argentine Republic is no doubt the most seriously affected, with about 175 endemic areas reported.[6] Other countries where endemic areas have been recorded are England,[7] Italy,[8] North Africa (Morocco, Tunisia and Algiers),[9] China [10] and Japan.[11] Extensive studies are apparently being carried on at present in the Argentine Republic and North Africa. Other countries in which this problem has been the subject of investigation within the past few years are England, Italy and Japan.

ETIOLOGY

There is strong presumptive evidence that the causative factor of mottled enamel is the presence of toxic amounts of fluorine, present as a fluoride, in the water used for drinking and cooking during the period of calcification of the permanent teeth. The conclusions in 1931 of three independent investigations [12] pointed

5. Smith, F. C.: Mottled Enamel and Brown Stain, Pub. Health Rep. **31:** 2915-2918 (Oct. 20) 1916.

6. Chaneles, Juan: Un problema odontológico de interés en la Argentina: La etiologia de Los Dientes Veteados, Rev. odont. (Buenos Aires) **20:** 64-73 (Feb.) 1932. Munoz, J. M.: El fluor del aqua y las alteraciones dentarias en la República Argentina, Rev. Soc. argent. biol. **10:** 43-54 (April) 1934. Erausquin, R.: Dientes veteados, Rev. odont. (Buenos Aires) (segunda communicacion) **22:** 314-325 (June) 1934; (tercera communicacion) **22:** 384-392 (July) 1934; (quinta communicacion) **23:** 296-313 (May) 1935.

7. Ainsworth, N. J.: (*a*) Mottled Teeth, Brit. Dent. J. **55:** 233-250 (Sept.) 1933; disc. pp. 274-276; (*b*) The Clinical Significance of Traces of Fluorides in Water, Analyst **59:** 380-385 (June) 1934.

8. Ricci, E.: Il fenomeno dei "denti screziati" in Italia, Ann. clin. odont. **12:** 1029-1043 (Dec.) 1933.

9. Velu, H.: Le Darmous (ou Dermes), Arch. Inst. Pasteur d'Algérie. **10:** 41-118 (March) 1932.

10. Anderson, B. G., and Stevenson, P. H.: Occurrence of Mottled Enamel Among Chinese, J. Dent. Research **10:** 233-238 (April) 1930.

11. Masaki, T.: Geographic Distribution of "Mottled Teeth" in Japan, Shikwa Gakuho **36,** October 1931. Nakano, T.: A Statistical Observation of the So-Called Endemic Affections of Tooth Structures, Rinsho Shika (English edition) **2:** 102-103 (May-June) 1933.

12. Churchill, H. V.: Discussion, Secretary's Report, Div. Water Sew. and San. Chem., News Ed., Indust. & Engin. Chem. **9:** 105 (April 10) 1931; Occurrence of Fluorides in Some Waters of the United States, Indust. & Engin. Chem. **23:** 996-998 (Sept.) 1931. Smith, M. C.; Lantz, E. M., and Smith, H. V.: The Cause of Mottled Enamel, a Defect of Human Teeth, University of Arizona College of Agriculture, Agri. Exper. Stat., technical bulletin 32, June 10, 1931. Velu, H., and Balozet, L.: Darmous (dystrophie dentaire) du mouton et solubilité du principe actif des phosphates naturels qui le provoque, Bull. Soc. path. exot. **24:** 848-851 (Nov. 12) 1931. Velu, H.: Dystrophie dentaire des Mammifères des zone phosphates (darmous) et fluorose chronique, Comp. rend. Soc. de biol. **58:** 750-752 (Nov. 21) 1931.

to fluorine as the etiologic factor. A carefully controlled experiment [13] in which municipal water was used from Conway, S. C., an endemic area, demonstrated that changes in the teeth of white rats given a concentrate of the Conway water were similar to those produced by water containing comparable amounts of sodium fluoride. The extensive survey about this time by Boissevain [14] in Colorado added further evidence to support this theory. Further experiments at this laboratory indicated,[15] at least with respect to white rats, that, while fluorine is the chief factor, other conditions possibly influence its action. There was a marked difference in the effect of a given quantity of sodium fluoride, depending on whether it was administered in the water or in the food.

Thorough surveys thus far made, though limited in number, have indicated that when an adequate number [16] of children are examined in a community having the requisites for quantitative evaluation there is an orderly uniformity in the group response to the fluoride concentration of the communal water supply, with regard both to the incidence and to the percentage distribution of severity, particularly the latter.

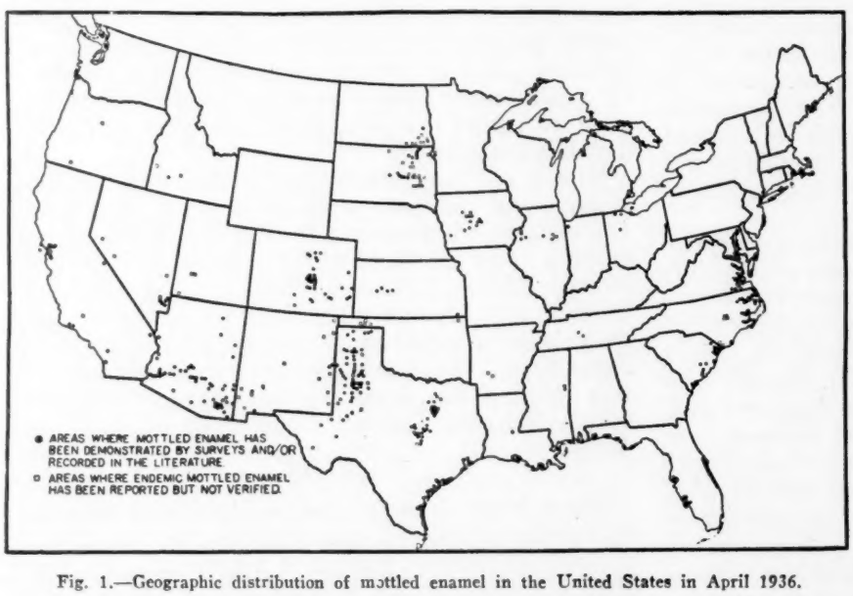
● AREAS WHERE MOTTLED ENAMEL HAS BEEN DEMONSTRATED BY SURVEYS AND/OR RECORDED IN THE LITERATURE.
○ AREAS WHERE ENDEMIC MOTTLED ENAMEL HAS BEEN REPORTED BUT NOT VERIFIED.

Fig. 1.—Geographic distribution of mottled enamel in the United States in April 1936.

The minimal threshold of toxicity in drinking water has not yet been definitely established, but studies to date would suggest that amounts not exceeding one part per million, expressed in terms of fluorine (F), are of no public health significance.

PEOPLE AND TIME FACTOR

There is apparently no race, color or sex differentiation. In endemic areas—at least with respect to the permanent teeth—only those individuals are affected who have used a water containing toxic amounts of fluorides during the period of calcification of their permanent teeth. Whether or not there are other signs or symptoms of fluorosis as yet unobserved among the adult population of an endemic area is at present undetermined. The work of Boissevain and Drea [17] on human bones, taken in conjunction with the reports of various workers in comparative pathology,[18] is at least suggestive of skeletal involvement. If so, the time factor must be extended to cover adults. Lemmon,[19] a pediatrician of Amarillo, Texas, an endemic area, records that "some of these babies have more tendency to bowing of the legs, even in the face of constant antirachitic therapy, thus supporting the theory that the toxic fluorides interfere with bone and dental metabolism."

HISTOPATHOLOGY

The first report on the pathologic histology of this disease was that of Black [20] in 1916, who noted that the identifying characteristic was the absence of the cementing, or interprismatic substance, between the outer fourth and the outer third of the enamel rods. Black states that no injury to the enamel rod was observed and that the dentin was normal. In 1923 Williams [21] confirmed the observations of Black respecting the absence or gross malformations of the interprismatic substance and added that in some instances the defective enamel structure extends to the dento-enamel junction. Black's opinion that the defect in mottled enamel was limited to the substance between the rods was based on examinations under the low and medium powers of the microscope and without the benefit of the silver nitrate staining technic as used by Williams. The latter, using a high resolving power of the 2 mm. and 3 mm. apochromatic objectives, found that the enamel rods were incompletely calcified. Imperfectly fused granules and small spherical bodies were frequently observed, the larger of these globular masses appearing to be identical with what are known as calcospherites. The histologic picture of mottled enamel disclosed no essential difference from that of incompletely calcified forming enamel, or enamel showing the early stages of caries. In 1925 Beust [22] called attention to the fact that, in addition to the enamel, the dentin was likewise affected, a condition which he termed mottled dentin. Black had stated that the dentin was normal, while no reference to this tissue had been made by Williams. The observation of Beust with respect to dentinal disorder has been confirmed by Ainsworth,[7a] who reported

13. Sebrell, W. H.; Dean, H. T.; Elvove, Elias, and Breaux, R. P.: Changes in the Teeth of White Rats Given Water from a Mottled Enamel Area Compared with Those Produced by Water Containing Sodium Fluoride, Pub. Health Rep. **48:** 437-445 (April 28) 1933.

14. Boissevain, C. H.: The Presence of Fluorine in the Water Supply of Colorado and Its Relation to the Occurrence of Mottled Enamel, Colorado Med. **30:** 142-148 (April) 1933.

15. Dean, H. T.; Sebrell, W. H.; Breaux, R. P., and Elvove, Elias: Effect of Various Amounts of Sodium Fluoride on the Teeth of White Rats, Pub. Health Rep. **49:** 1075-1081 (Sept. 14) 1934.

16. Dean, H. T., and Elvove, Elias: Studies on the Minimal Threshold of the Dental Sign of Chronic Endemic Fluorosis (Mottled Enamel), Pub. Health Rep. **50:** 1719-1729 (Dec. 6) 1935.

17. Boissevain, C. H., and Drea, W. F.: Spectroscopic Determinations of Fluorine in Bones, Teeth, and Other Organs in Relation to Fluorine in Drinking Water, J. Dent. Research **13:** 495-500 (Dec.) 1933.

18. Cristiani, H.: La diminution de la résistance des os dans la cachexie fluorique, Schweiz. med. Wchnschr. **59:** 63-64 (Jan. 19) 1929. McClure, F. J., and Mitchell, H. H.: The Effect of Fluorine on the Calcium Metabolism of Albino Rats and the Composition of the Bones, J. Biol. Chem. **90:** 297-320 (Jan.) 1931. Pachaly, W.: Ueber Veranderungen der Zähne und Kieferknochen bei experimenteller chronisher Fluorvergiftung. Arch. f. exper. Path. u. Pharmakol. **166:** 1-14, 1932. Sutro, C. J.: Changes in Teeth and Bone in Chronic Fluoride Poisoning, Arch. Path. **19:** 159-173 (Feb.) 1935.

19. Lemmon, J. R.: Mottled Enamel of Teeth in Children, Texas State J. Med. **30:** 332-336 (Sept.) 1934.

20. Black, G. V. in collaboration with McKay, F. S.: Mottled Teeth—An Endemic Developmental Imperfection of the Teeth, Heretofore Unknown in the Literature of Dentistry, Dent. Cosmos **58:** 129-156 (Feb.) 1916.

21. Williams, J. L.: Mottled Enamel and Other Studies of Normal and Pathological Conditions of this Tissue, J. Dent. Research **5:** 117-195 (Sept.) 1923.

22. Beust, T. B.: A Contribution to the Etiology of Mottled Enamel, J. Am. Dent. A. **12:** 1059-1066 (Sept.) 1925.

imperfectly calcified dentin with interglobular spaces such as may be seen in any ordinary case of hypoplasia. Ainsworth further notes that the pitting observed macroscopically on the surface of the enamel may be explained as a breaking off of the ends of enamel layers weakened by the loss of the inter-

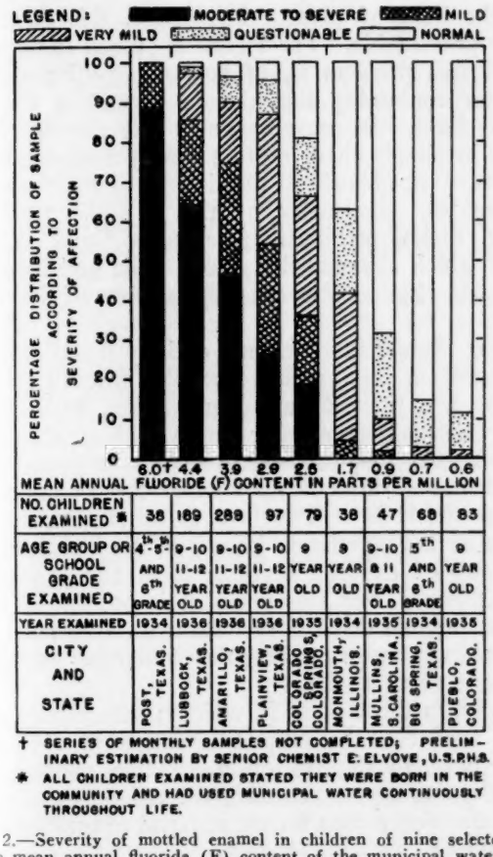
LEGEND: MODERATE TO SEVERE MILD
VERY MILD QUESTIONABLE NORMAL
PERCENTAGE DISTRIBUTION OF SAMPLE ACCORDING TO SEVERITY OF AFFECTION
100
90
80
70
60
50
40
30
20
10
0
6.0† 4.4 3.9 2.9 2.5 1.7 0.9 0.7 0.6
MEAN ANNUAL FLUORIDE (F) CONTENT IN PARTS PER MILLION
NO. CHILDREN EXAMINED * 38 189 289 97 79 38 47 68 83
AGE GROUP OR SCHOOL GRADE EXAMINED 4th-5th AND 6th GRADE | 9-10 11-12 YEAR OLD | 9-10 11-12 YEAR OLD | 9-10 11-12 YEAR OLD | 9 YEAR OLD | 9 YEAR OLD | 9-10 & 11 YEAR OLD | 5th AND 6th GRADE | 9 YEAR OLD
YEAR EXAMINED 1934 1936 1936 1936 1935 1934 1935 1934 1935
CITY AND STATE POST, TEXAS. | LUBBOCK, TEXAS. | AMARILLO, TEXAS. | PLAINVIEW, TEXAS. | COLORADO, COLORADO. | MONMOUTH, ILLINOIS. | MULLINS, S. CAROLINA. | BIG SPRING, TEXAS. | PUEBLO, COLORADO.
† SERIES OF MONTHLY SAMPLES NOT COMPLETED; PRELIMINARY ESTIMATION BY SENIOR CHEMIST E. ELVOVE, U.S.P.H.S.
* ALL CHILDREN EXAMINED STATED THEY WERE BORN IN THE COMMUNITY AND HAD USED MUNICIPAL WATER CONTINUOUSLY THROUGHOUT LIFE.

Fig. 2.—Severity of mottled enamel in children of nine selected cities and the mean annual fluoride (F) content of the municipal water supply in 1933-1934. (All fluoride determinations were made by senior chemist Elias Elvove, United States Public Health Service, and, with the exception of those for Post, Texas, have been reported in two previous articles [Dean and Elvove, footnotes 16 and 28]. For information concerning the history of each water supply, seasonal variations or chemical methodology, the reader is referred to these papers.)

prismatic substance. He adds that the layers of enamel formed between the striae of Retzius are broken off almost at right angles to the striae, so that they show on the floor of the pits as a series of angular outcrops, giving in one section a definitely serrated appearance not unlike the pits in other forms of hypoplastic teeth. Erausquin [23] reports that the permeability of mottled enamel is comparable to that of immature normal (unerupted) enamel and enamel affected by caries. The permeable zone that characterizes mottled enamel is always the most external; its intensity diminishes from the outside inward.

RELATION TO OTHER ORAL PATHOLOGIC CHANGES

In spite of its defective structure, mottled enamel teeth, according to McKay,[24] exhibit no greater liability to caries than do normally calcified teeth, an inference apparently substantiated by the studies of Masaki,[11] Ainsworth [7a] and Erausquin.[6] Masaki [11] and Ainsworth [7a] have likewise called attention to an apparent delay in the eruption of permanent teeth of children residing in endemic areas, an observation which I have as yet been unable to confirm. Ainsworth [7a] and Lemmon [19] have also suggested that the deciduous teeth erupt somewhat later than usual.

From observations that I made in areas of relatively high fluoride concentration (more than 4 parts per million of fluorine) there is sufficient evidence to suggest that there is an apparent tendency toward a higher incidence of gingivitis.

DOMESTIC ANIMALS

The production of an analogous pathologic condition under natural conditions in certain domestic animals has been reported in North Africa,[9] the United States [25] and the Argentine Republic.[23] This endemic hypoplasia particularly affects those domestic animals requiring several years for the calcification of their permanent teeth, such as the horse, the cow and the sheep. In North Africa, especially, this phase of the problem has been the subject of considerable investigation.[26]

INCIDENCE

The incidence in an endemic area may be high. Among those children exposed to waters containing relatively high amounts of toxic fluorides during the first eight years of life, an incidence of from 80 to 90 per cent is not uncommonly observed. In some instances it may reach 100 per cent. Both the incidence and the percentage distribution of severity of the condition has been found to vary in relation to the fluoride concentration of the water. For epidemiologic purposes and subsequent correlation with chemical and other studies, the determination of a community mottled enamel index is advisable. These indexes, which have previously been described,[1b] are negative, borderline, slight, medium, rather marked, marked, and very marked.

The actual mottled enamel index of a community should not be computed unless there have been no physical changes in the set up of the water supply concomitant with the life period of the group examined. For practical purposes, however, an approximate mottled enamel index may be developed if the interruptive variable in the water supply is such that it can be mathematically appraised. The group of children must consist of at least twenty-five individuals 9 years of age or older, whose time of risk of exposure has been constant, meaning that the children were born in the community, had lived there all their lives (short breaks in continuity totaling less than thirty days in any calendar year excepted) and had always used the

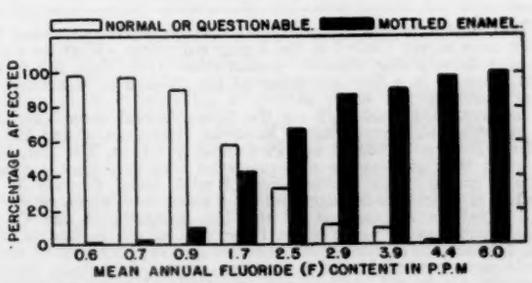

Fig. 3.—Graphic summary of data in figure 2, showing quantitative relation of fluoride (F) concentration to clinical effect.

23. Erausquin, R.: Dientes veteados (cuarto communicacion), Rev. odont. (Buenos Aires) **22**: 430-441 (Aug.) 1934.

24. McKay, F. S.: The Establishment of a Definite Relation Between Enamel That Is Defective in Its Structure, as Mottled Enamel, and the Liability to Decay: II, Dent. Cosmos **71**: 747-755 (Aug.) 1929.

25. Dean, H. T.: Mottled Enamel in Cattle, Pub. Health Rep. **50**: 206-210 (Feb. 15) 1935.

26. Velu; [9] Darmous (fluorose chronique) et arrêt du développement, Bull. l'Acad. vet. de France **7**: 108-109 (March 1) 1934; Les phosphates, Association française pour l'avancement des sciences (pp. 21-32) 58 E Session, Rabat, 1934.

municipal or communal water supply both for cooking and for drinking. In cases in which the examination of the first twenty-five children discloses an incidence of less than 75 per cent, it has been found desirable, if not necessary, to increase the number in the group to fifty or more in order to compensate for fluctuations in sampling and their possible effect on the computation of the mottled enamel index.

The group examined should preferably consist of 9, 10, 11 and 12 year old children. Clinical observations limited to 9 year old children in areas in which the fluoride concentration of the water is less than 3 parts per million have a tendency to give a slightly lower incidence [27] than if the survey had embraced the four age groups mentioned.

QUANTITATIVE RELATION OF CONCENTRATION TO ACTION

In surveys made of cities having the requisites for quantitative evaluation [28] and even where these requisites are closely approximate, there is a definite quantitative relation between the fluoride concentration and the clinical effect. Although a prognosis with respect to any one individual is obviously unwarranted, it is felt that a prognosis relative to the group response to waters of varying fluoride concentration may be tentatively made at this time. From the continuous use of water containing about 1 part per million, it is probable that the very mildest forms of mottled enamel may develop in about 10 per cent of the group. In waters containing 1.7 or 1.8 parts per million, the incidence may be expected to rise to 40 or 50 per cent, although the percentage distribution of severity would be largely of the "very mild" and "mild" types. At 2.5 parts per million an incidence of about 75 to 80 per cent might be expected, with possibly 20 to 25 per cent of all cases falling into the "moderate" or a severer type. A scattering few may show the "moderately severe" type.

At 4 parts per million the incidence is, in general, in the neighborhood of 90 per cent, and as a rule 35 per cent or more of the children are generally classified as "moderate" or worse. In concentrations of 6 parts per million or higher an incidence of 100 per cent is not unusual. In other words, we are dealing with a low grade chronic fluorine poisoning of children and the action on the group roughly follows the general pharmacologic observations of Shackell,[29] respecting the quantitative relation of concentration to effect.

PREVENTION

In the light of present knowledge, this disease is readily preventable. The logical approach to the solution of this problem is, of course, avoiding the use of water containing fluorides in excess of the permissible limit. In some instances this can be accomplished by simply changing to a readily available source in the same neighborhood that is free of toxic amounts of fluorides. Examples of this are the towns of Oakley, Idaho, previously referred to,[4] and Bauxite, Ark.,[30] which abandoned its deep wells and turned to the nearby Saline River as the source of its water supply.

Where such changes are not entirely feasible, it may be possible in some cases, especially where the water contains less than 2 parts per million, to dilute an otherwise satisfactory water supply with another water that will bring the final fluoride content down within the permissible limits. And while these changes are being made, it is well to bear in mind that the only portion of the population known to need protection is the group of children between birth and 8 years of age, inclusive. For this group it is possible in many cases to provide distilled or cistern water for drinking and cooking purposes during the susceptible period, the first eight years of life.

Finally, in those areas in which a satisfactory water is not available, the ultimate solution in such cases would have to depend on a suitable method, economically feasible, of treating the existing water supply by chemical means for the removal of toxic amounts of fluorides.

National Institute of Health.

ABSTRACT OF DISCUSSION

Dr. Carl F. Jordan, Des Moines, Iowa: In 1933, after completing a nation-wide survey, Dr. Dean reported 125 localities in this country representing endemic areas giving rise to mottled enamel. He now reports a total of 335 endemic areas, with distribution in twenty-five states. In 1932 a dentist, Carl T. Ostrem, was first to report mottled enamel in Iowa, affecting school children at Ankeny, near Des Moines. A statewide survey was begun in 1933 by the Iowa State Department of Health. To date fourteen areas of mottled teeth have been discovered. Iowa is fortunate in that the endemic areas listed at this time affect no cities with a population over 2,000. The chief method of prevention of mottled enamel lies in securing a water supply free from fluorine. Changing the water supply offers difficulties in a community using deep well water containing fluorine, where there is no convenient access to another water supply free from this element. On the other hand, if the change can readily be made, failure to do so should constitute negligence on the part of officials. Bauxite, Ark., and Oakley, Idaho, are striking examples of towns which have changed their water supplies and where children are now free from the mottled enamel defect. Further steps are needed to overcome the apathy of officials in certain communities toward this unfortunate dental defect. First hand observation of the moderately severe form of mottling with the associated brown

27. Two related factors are probably the cause of this somewhat lower incidence in a survey limited to the 9 year old group. First, in endemic areas of relatively low fluoride concentration (less than 2 parts per million) there is, in a fair proportion of the children of comparable and constant residence and water history, a tendency to show the milder forms of mottled enamel only on the bicuspids and second molars, a group of teeth which, according to Kronfeld (Development and Calcification of the Human Deciduous and Permanent Dentition, The Bur, March 1935) begin their calcification at a somewhat later date than the incisor-first molar group. This manifestation of mild dental fluorosis in teeth calcified at a later date is suggestive of a cumulative action of fluorine. Second, based on an analysis of the 162 schedules of the Colorado Springs-Pueblo survey,[16] only about 1 per cent of the permanent second molars, 7.2 per cent of the second bicuspids and 20.5 per cent of the first bicuspids were erupted in the 9 year age group. It follows, therefore, that certain 9 year old children are necessarily classified as normal on the basis of the absence of mottled enamel on the incisor-first molar group when, if the same individual were examined a year or two later, it might show objective signs of mottled enamel on the bicuspid-second molar group and be so classified. Adjusting for this minus variation, for instance, in a survey of a community like Colorado Springs where the mean annual fluoride content of the city water is 2.5 parts per million of fluorine, an examination of 9, 10, 11 and 12 year old children would probably result in raising the incidence from 67 per cent for the 9 year old group exclusively to a general rate of about 75 to 80 per cent if the sample consisted of the four age groups mentioned. Because the percentage distribution of severity in the 9 year group examined in this city is so near that of the next higher index, it is probable that, in this instance, the community mottled enamel index would be raised from "slight" to "medium." In areas where the fluoride content of the water is between 1.5 and 2 parts per million, it is unlikely that this difference would have any effect other than a slight increase in the incidence. In areas of relatively high concentrations, the effects of this variation would, of course, be negligible.

28. Dean, H. T., and Elvove, Elias: Some Epidemiological Aspects of Chronic Endemic Dental Fluorosis, Am. J. Pub. Health **26**: 567-575 (June) 1936.

29. Shackell, L. F.; Williamson, Wayne; Deitchman, M. M.; Katzman, G. M., and Kleinman, B. S.: The Relation of Dosage to Effect, J. Pharmacol. & Exper. Therap. **24**: 53-65 (Aug.) 1924. Shackell, L. F.: The Relation of Dosage to Effect: II, ibid. **25**: 275-288 (May) 1925.

30. Kempf, G. A., and McKay, F. S.: Mottled Enamel in a Segregated Population, Pub. Health Rep. **45**: 2923-2940 (Nov. 28) 1930.

stains, in children whose teeth are otherwise perfect in form and arrangement, will do much to dispel indifference. Dr. Dean referred to the recent work of J. R. Lemmon, a pediatrician in Texas, who reported defective development of the long bones in babies whose diet includes water with fluorides in toxic amount. Further clinical studies might well be carried out by physicians to demonstrate harmful effects apart from the enamel dystrophy. Such work would supplement noteworthy contributions that have already been made by Dr. Dean and others and would promote measures designed to prevent mottled enamel of the teeth.

DR. STANLEY H. OSBORN, Hartford, Conn.: I should like to ask Dr. Dean if there are any other conditions in the body that this affects, such as endocrine disorders or difficulties.

DR. L. D. BRISTOL, New York: I should like to ask whether there is any correlation between mottling of the enamel and what might be called mottling of the skin, as a result of this type of water. The tale is frequently heard that these so-called liver spots on the skin are nothing but a mottling due to certain types of alkaline water.

DR. H. T. DEAN, Washington, D. C.: There are several articles in the literature suggesting a possible relation between fluorine and the endocrines. First there is the report of Goldemberg, who attempted to show a relationship between fluorine and endemic goiter: this work, of course, is not generally accepted. With respect, however, to the parathyroids several investigations are of interest. In 1911 Erdheim reported the effect of parathyroidectomy on rats. The structural defects in the incisor teeth of the parathyroidectomized animals were apparently similar to the defects now associated with experimental fluorosis. With this as a basis, a group at the University of Wisconsin a few years ago attempted to determine whether there were demonstrable changes in the parathyroids of rats affected with fluorosis. The experimental group was fed a relatively high fluoride concentration, but the gross and histopathologic examination failed to show any consistent significant changes. There is a considerable literature suggesting possible skeletal involvement. Cristiani working with guinea-pigs found that the fragility of the bones was increased about 20 per cent in the fluorized animals. Sutro has recently reported in the *Archives of Pathology* definite osseous changes, an osteosclerosis, in rats fed fluorides over a period of time. The experiments which I have just cited were of course on experimental animals. The work, however, of Boissevain and Drea at Colorado Springs is of particular interest because they were dealing with human material. These workers found that bones of residents of Colorado Springs or Cripple Creek contain about six times as much fluorine as that found in the "control" bones, which were from New York City and Washington, D. C. The biochemical observations in this study were confirmed by spectroscopic examination. Regarding the question asked by Dr. Bristol, there are two references in the literature that may be pertinent. Black in 1916 stated that he thought the defect was more pronounced in children predisposed to freckling; Lemmon in a recent article in the *Texas State Journal of Medicine* states that mottled enamel occurs more frequently in blonds and "redheads." However, I know of no definite correlation on this point. The suggestion of Dr. Jordan is well taken; namely, that the possibilities of untoward effects of fluorine on the skeletal system of inhabitants of endemic areas should be thoroughly explored. An excerpt from a paper by Velu published in the *Bulletin* of the Academy of Medicine at Paris a few years ago is particularly relevant. Referring to "le darmous," the name by which this disease is known in North Africa, Velu referred to the condition as "the fluorine sign of the inapparent intoxication." The question of legal liability has arisen in connection with common water supplies containing toxic amounts of fluorides. There is a report that in one endemic area two damage suits have been filed against the municipality. It is a new phase of the problem and in several states health officers, sanitary engineers and city officials are giving this new development serious consideration.

Vitamin C in Staple Foods.—Fruits, vegetables and milk are the practically important sources of vitamin C among our staple foods.—Sherman, H. C.: Food and Health, New York, Macmillan Company, 1934.

THE THERAPEUTIC USE OF HELIUM

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The basis for the proposal of helium as a gas for therapeutic use in certain types of dyspnea occurring in clinical disease depends wholly on its decreased specific gravity in relation to nitrogen.[1] Since the weight of a comparable volume of nitrogen is seven times greater than that of helium, a mixture of 21 per cent oxygen and 79 per cent helium may be substituted for 21 per cent oxygen and 79 per cent nitrogen, namely air, thus providing a respirable gas mixture which has one-third the density of air. During quiet breathing the influence of such a decrease in weight is practically negligible. The physical law which provides that the force required to move an object is proportional to the weight of the object does not, however, indicate that one-third the effort employed in breathing air would suffice for the inhalation of the helium-oxygen mixture. The pressure maintained in the tubal system of the respiratory tract in quiet breathing is so small that no significant change in intratracheal or intrapleural pressure was observed in animals as a result of the substitution of the lighter gas mixture. When inspiration has once been initiated, the passage into the lungs of either air or a helium-oxygen mixture is consciously almost effortless; expiration is completely so.

However, when there is an obstruction in any part of the respiratory tubal system, an increased negative pressure within the chest becomes necessary for the inward movement of air past the obstruction, and there exists in the passageway between the lung and the site of obstruction a marked increase in pressure of the atmosphere being transported. During violent dyspnea without obstruction, in which large volumes of air are moved in and out of the lungs at a high velocity, the smaller elements in the respiratory tubal system act as a relative constriction, and here too the air is under increased pressure. The function of a helium-oxygen mixture may now be explained by the physical formula. The velocity of movement of a gas through small orifices is proportional to the square root of the density of the gas. The pressure required for the movement of an 80 per cent helium-20 per cent oxygen mixture would be almost one-half that required for air. In human subjects who breathed through narrow orifices, an actual reduction as high as 50 per cent was found in the pressure of a helium-oxygen atmosphere as compared to air.[2] Since pure oxygen is slightly heavier than air, approximately the same reduction in physical force takes place when the helium-oxygen mixture is substituted for 100 per cent oxygen. Furthermore, in experimental respiratory obstruction in animals and in a patient in severe asthma, a reduction in intrapleural negative pressure was found when the helium-oxygen

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Owing to lack of space, a table summarizing the clinical data on eighteen patients with asthma treated by inhalation of helium with oxygen has been omitted here. This table together with an unabridged text will appear in the author's reprints.

The author is indebted to the United States Public Health Service and the Bureau of Medicine and Surgery, United States Navy, for a grant of helium, to the National Research Council for assistance, and to the Linde Air Products Company for active support.

1. Barach, A. L.: Use of Helium as a New Therapeutic Gas, Proc. Soc. Exper. Biol. & Med. **32**: 462 (Dec.) 1934.

2. Barach, A. L.: Use of Helium as a Therapeutic Gas, Anesth. & Analg. **14**: 210 (Sept.) 1935.

mixture was substituted for air.[3] This saving in respiratory effort has been made use of in patients with severe asthma or obstructive lesions in the larynx, trachea and bronchi.[4] In this report the principles and clinical application of the therapeutic use of helium in a larger series of cases will be described.

HISTORICAL

Helium was isolated from the mineral cleavite by Ramsay[5] in 1895. It was later found to be a constituent of the air to the extent of one part in 200,000. It is now obtained from certain natural gases and is used in dirigibles because of its buoyancy, having replaced hydrogen because it is free from explosive possibilities. In 1923 Cooke[6] called attention to the fact that helium had a coefficient of solubility half that of nitrogen and a diffusibility twice as great. Sayers and Yant[7] in 1926 showed that animals could be decompressed from ten atmospheres of helium-oxygen mixture in one-third the time necessary for a nitrogen-oxygen mixture. Elihu Thompson[8] in 1927 called attention to correspondence with the U. S. Bureau of Mines in which he suggested the use of helium for divers in 1919.

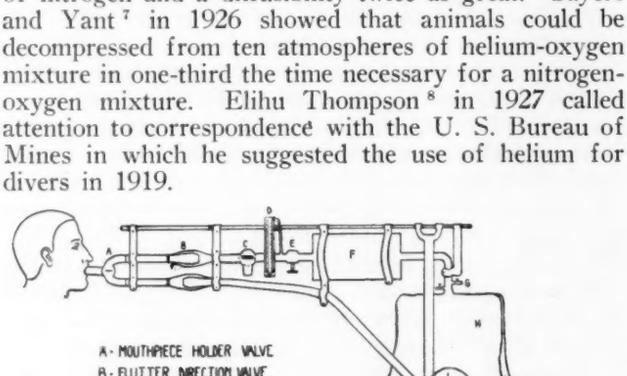

Fig. 1.—Helium pressure rebreathing apparatus.

Hershey[9] reported that animals could not survive in atmospheres in which the rare gases were excluded. However, I[10] carefully tested this hypothesis and showed that animals were apparently uninfluenced in atmospheres in which all the rare gases were excluded for as long as forty-two days. Furthermore, animals (mice) were kept in completely sealed chambers in which there was 21 per cent oxygen and 79 per cent helium for periods as long as two months without obvious change in their general condition. These investigations confirmed in my mind previous evidence of the biologic inertness of the rare gases and helium specifically; the conception of helium as a vehicle for oxygen then took place, based on its physical property of possessing the lowest specific gravity of any of the elements except hydrogen, the highly explosive nature of which forbade its clinical use.

3. Barach, A. L.: Effects of the Inhalation of Helium Mixed with Oxygen on the Mechanics of Respiration, J. Clin. Investigation **15**: 47 (Jan.) 1936.
4. Barach, A. L.: Use of Helium in the Treatment of Asthma and Obstructive Lesions in the Larynx and Trachea, Ann. Int. Med. **9**: 739 (Dec.) 1935.
5. Ramsay, Sir William: The Gases of the Atmosphere, ed. 3, London, Macmillan Company, 1905.
6. Cooke, C.: U. S. Patent Office, 1923, patent 1,473,337.
7. Sayers, R. R., and Yant, W. P.: Value of Helium-Oxygen Atmosphere in Diving and Caisson Operations, Anesth. & Analg. **5**: 127 (June) 1926.
8. Thompson, Elihu: Correspondence, Science **65**: 36 (Jan. 14) 1927.
9. Hershey, J. W.: Physiologic Effects of Atmospheres Diluted by Nitrogen, Tr. Kansas Acad. Sc. **32**: 51, 1929.
10. Barach, A. L.: Rare Cases Not Essential to Life, Science **80**: 593 (Dec.) 1934.

METHODS

The administration of helium presented difficulties not encountered in the therapeutic use of oxygen. In order to obtain satisfactory results it was found highly necessary that nitrogen should be rigidly excluded, because of the fact that a leakage of air into the apparatus markedly increased the weight of the mixture and thereby interfered with the specific function of helium. Furthermore, it is important that helium be not haphazardly administered, lest an excessive concentration of helium inadvertently result in asphyxia. Since my first clinical communication,[4] mixtures of from 20 to 25 per cent oxygen with from 75 to 80 per cent helium have been made in a single tank, which protects against an undue lowering of the oxygen concentration, provided an adequate flow of the combined gas is continuously administered.

Two general methods have been developed, which are subject to various modifications. For relatively short periods of administration, such as from one-half hour to three hours, a closed circuit rebreathing apparatus has been used with a mouthpiece or a mask. This has been found practicable in adult patients with asthma. The mouthpiece is the same as that used in basal metabolism apparatus; a nose clip is required to exclude air from the nose. The mask is very light and is kept in place by two elastic straps around the head. The closed circuit apparatus contains a motor blower unit which has been specially reconditioned to make it leak tight, one-inch inlet and outlet tubing which connects with a Douglas (or other rebreathing bag) and a soda lime canister. Inserted in the exhalation tubing is a two-way valve which may allow a flow through it or be turned so that the expired air passes into the atmosphere. There is a variable orifice steam valve and a water manometer distal to it, also introduced in the exhalation tubing. The steam valve may be turned so as to produce a resistance in the circuit and thereby increase the pressure in the system, the degree of which is read by a manometer distal to it.

When treatment is begun the rebreathing bag is filled from the tank containing the combined mixture (from 20 to 25 per cent oxygen, the remainder helium). The first filling is washed out by turning to the atmosphere the two-way valve on the exhalation side of the circuit. When the bag has again been filled with the desired mixture the patient is attached to the apparatus through either a mouthpiece or a mask, and the first eight or ten breaths are allowed to be exhaled into the atmosphere through the two-way valve in order that the nitrogen in the lungs may not dilute the helium-oxygen atmosphere. During this period it is desirable to continue to let the mixture run into the apparatus, at a rate of approximately 15 liters per minute, in order to maintain a positive pressure until the motor blower unit has been turned on. After the patient's lungs have thus been washed out, the two-way valve is turned into the circuit and the motor blower unit turned on. The steam valve is adjusted so that a pressure of 1 or 2 cm. of water is recorded. The gage on the helium-oxygen tank is then lowered to 4 liters per minute. (An oxygen gage can be used but would have to be recalibrated, since a higher flow of the helium-oxygen mixture would be admitted at a given reading; a float gage, a rota-regulator or a calibrated water bottle could be used.) It would be possible, after the mixture has been obtained in the rebreathing bag and the patient connected to the apparatus, simply to add the oxygen consumption of the patient, entirely reusing the helium

and making frequent tests of the oxygen concentration in the circuit. However, in actual practice it has been found both more convenient and more effective to deliver from 4 to 5 liters of the oxygen-helium mixture continuously during the treatment, which accomplishes a partial reusing of helium, insures a constant supply of oxygen and tends to maintain the proper helium concentration, which inadvertent leaks might otherwise impair. If 4 liters per minute of 25 per cent oxygen and 75 per cent helium is administered to an adult patient, his own oxygen consumption will usually lower the concentration in the mixture to between 22 and 23 per cent; the relatively smaller oxygen consumption in infants will but slightly lower the oxygen concentration of the mixture admitted. When the treatment is about to be terminated, the valve at the mouthpiece is turned toward air before the patient is disconnected in order not to suck air into the apparatus.

A basal metabolism apparatus could be adapted for helium administration, the excess helium-oxygen gas being allowed to bubble out of the water in the spirometer. However, a positive pressure is necessary in this method, even if it is only from 0.5 to 4 cm., in order that the patient may not be compelled to inhale against the resistance in the circuit. This may be done by inserting a motor blower unit of sufficient capacity or by putting a weight on the spirometer bell. A water manometer may be led from the exhalation side of the circuit and fastened by adhesive plaster to the spirometer.[11]

The oxygen tent has been employed with certain modifications, although maintaining strictly hygienic atmospheric conditions previously described.[12] Helium-proof fabric is used. The motor blower unit is especially reconditioned so that no leaks occur. For infants a tent has been used in which the entire body is enclosed. For adults it is more practicable simply to enclose the head and to make a closure at the neck. The Benedict[13] helmet respiration apparatus may be used for this purpose or any variety of hood that takes in only the head and neck. Even for infants, this type of apparatus seems now preferable to the body tent. When the patient is placed in the tent, pure oxygen is admitted at high speed from a needle valve until a test of over 98 per cent oxygen is obtained in the enclosed atmosphere. The tank containing the mixture of 25 per cent oxygen and 75 per cent helium is then turned on at a flow of from 20 to 30 liters per minute until a concentration of 25 per cent oxygen is obtained in the tent. For infants from 2 to 3 liters a minute of the mixture is then admitted, for adults from 4 to 6 liters.

TREATMENT OF ASTHMA

In the previous clinical communication,[3] inhalation of helium with oxygen was found beneficial for (1) the patient in status asthmaticus in whom severe asthma became continuous and in whom there was complete refractoriness to epinephrine and all other measures, (2) for cases of severe asthma with partial refractoriness to epinephrine in which epinephrine must be employed five or more times daily to keep the patient in even moderate comfort. These two groups merge into each other, being characterized by the loss of sensitivity to epinephrine. In severe asthma it is a common clinical experience to observe that the patient requires more and more epinephrine to control his asthma and that with the use of increasing amounts of epinephrine a refractory state develops in which only temporary and incomplete bronchiolar dilatation results from its use. Maytum, Prickman and Boothby[14] confirmed our results in status asthmaticus, reporting three cases that were promptly relieved, both objectively and subjectively, by the inhalation of helium with oxygen after all other measures had been tried and found unavailing. In their opinion these patients looked as if a fatal outcome might otherwise have taken place. In five patients of the present group of eighteen the severity of the asthmatic state was such as to lend weight to the fear that death might momentarily occur.

The mechanism of improvement of status asthmaticus is based on the decreased respiratory effort required for pulmonary ventilation when a helium-oxygen mixture is breathed. Within a few minutes some degree of relief is obtained, although it may be a matter of from two to eight hours before the bronchial spasm is relieved. It appears to be a clinical fact that the early period of relief obtained by the respiratory system as a whole of itself initiates bronchial dilatation. After improvement has become manifest through the inhalation of helium with oxygen, the patient promptly recovers some degree of sensitiveness to epinephrine. In some instances even after relatively short periods of administration, such as from two to five hours, the patient becomes completely sensitive to epinephrine and requires no further helium treatment. In other cases periodic inhalations are necessary for from two to five days before complete restoration of epinephrine sensitivity is produced.

In patients who have not progressed to a condition as severe as status asthmaticus but who suffer more or less continued wheezing throughout the day or night, with frequent acute paroxysms, the inhalation of helium-oxygen mixtures initiates a variable degree of relief, depending on the severity of the bronchial constriction. This may be roughly estimated as between 80 and 100 per cent for what might be termed chronic wheezing and between 50 and 80 per cent for more severe bronchial spasm. In these patients the administration of helium with oxygen through a mask or mouthpiece rebreathing apparatus is employed for most of the time during the day when more or less continuous asthma is present. In some patients sufficient relief will be obtained by breathing the gas under atmospheric pressure; in most a slight positive pressure, such as between 0.5 and 4.0 cm. of water pressure, is desirable. The increased pressure facilitates the entrance of the gas into the lungs and thus decreases the negative pressure existing within the chest. We have shown in one patient with asthma a decrease of from —11 to —7 cm. intrapleural negative pressure induced by the inhalation of 20 per cent oxygen and 80 per cent helium under 5 cm. positive pressure.[15]

In animals breathing through a narrowed orifice, the decrease of the negative intrapleural pressure, breathing a helium-oxygen mixture under positive pressure, has been graphically recorded (fig. 2). As seen in this record, a decrease from minus 12 cm. of water to

11. The rebreathing apparatus with mask and mouthpiece may be obtained from the Oxygen Therapy Service Company, New York. Other manufacturers of equipment used are the Mine Rescue Appliance Company, Pittsburgh, which makes the masks and the densiometer; Warren E. Collins, Boston, who manufactures the Benedict Helmet Respiration Apparatus; the Forreger Company, New York, which calibrates water bottles for separate introduction of helium and oxygen; John Emerson, Cambridge, Mass., who makes an infant tent.

12. Barach, A. L.: New Oxygen Tent, J. A. M. A. **87:** 1213 (Oct. 9) 1926; Importance of Ventilation in Oxygen Tent and Oxygen Chamber Therapy, New York State J. Med. **31:** 1263 (Oct. 15) 1931.

13. Benedict, F. G.: A Helmet for Use in Clinical Studies of Gaseous Metabolism, New England J. Med. **203:** 150 (July 24) 1930.

14. Maytum, C. K.; Prickman, L. E., and Boothy, W. M.: Use of Helium and Oxygen in the Treatment of Severe Intractable Asthma, Proc. Staff Meet., Mayo Clin. **10:** 785 (Dec. 11) 1935.

15. The author is indebted to Dr. Richmond Moore for his help in obtaining these observations.

minus 7.9 cm. occurred during inspiration, and from minus 3.4 cm. to minus 0.9 cm. in expiration. The presence of continued increased negative pressure within the chest causes an accumulation of blood within the lungs, promotes exudation of serum into the alveolar spaces and retards the filling of the left side of the heart. In animals, edema of the lungs has been produced by subjecting the animal to respiration against a negative pressure of from 3 to 4 cm. of water, whereas breathing against a positive pressure of similar degree does not cause these pulmonary changes.[16] These results are comparable to those of Moore and Binger,[17] who reported pulmonary congestion and edema in animals that inspired through a narrow orifice but found no such changes in animals that expired against a resistance. The lungs of dogs in my experiments inhaling either against resistance or against a negative pressure showed not only massive pulmonary congestion and edema but also areas of emphysema. The production of obstructive emphysema, therefore, seems to me to be more related to the effect of a high

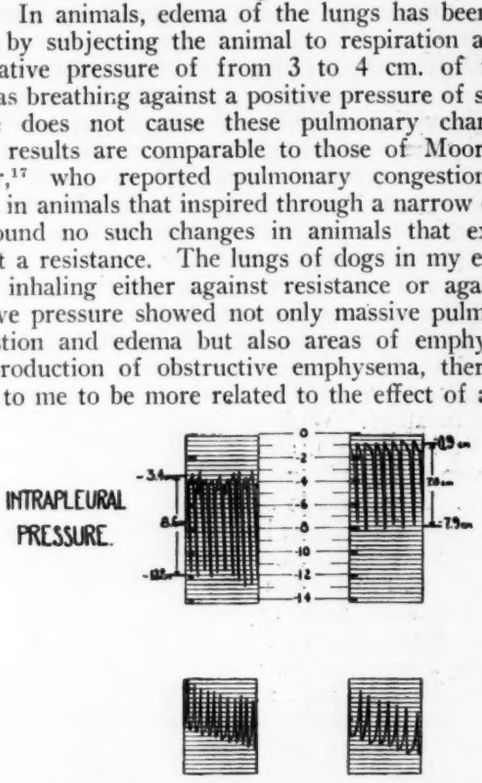

Fig. 2.—Intrapleural pressure and tidal air in dog breathing through three-sixteenths inch orifice:

1. Air at atmospheric pressure. 2. Air at 5.5 cm. of water pressure.

The effect of positive pressure is to reduce the negative pressure within the chest during inspiration and expiration and also the total range of pressure.

intranegative pressure within the chest rather than to any backward distending pressure on the alveolar walls, a view also supported by Prinzmetal.[18]

In patients suffering from status asthmaticus, I have observed that the volume of the pulse either is greatly diminished or disappears at the end of inspiration; even in patients with moderately severe asthma the systolic blood pressure drops precipitately at the end of inspiration. I have thought this was due to incomplete filling of the left heart because of the high negative or suction pressure existing within the chest. In one patient in a severe asthmatic state I found an intrapleural negative pressure of minus 20 cm. of water. High readings have also been reported by Prinzmetal [18] and others. The physiologic advantage of the administration of helium with oxygen may in part be explained by its effect in lowering the intrapleural negative pressure. By adding a positive pressure in the apparatus, a still further lowering of the negative chest pressure is obtained.

16. Data to be published.

17. Moore, R. L., and Binger, C. A. L.: Observations on Resistance to the Flow of Blood to and from the Lungs, J. Exper. Med. **45**: 655 (April) 1927; The Response to Respiratory Resistance: A Comparison of the Effects Produced by Partial Obstruction in the Inspiratory and Expiratory Phases of Respiration, ibid. **45**: 1065 (June) 1927.

18. Prinzmetal, Myron: Relation of Inspiratory Distention of the Lungs to Emphysema, J. Allergy **5**: 493 (July) 1934.

There is, however, a further factor to be considered; namely, that an excessive positive pressure within the chest also decreases the filling of the left side of the heart, with a parallel fall in the systolic blood pressure. Pressures between 5 and 10 cm. of water have therefore been given for short periods such as one-half hour, and the volume of the pulse and the blood pressure observed during its administration. If the pulse volume is noticeably decreased or the systolic blood pressure falls more than 20 mm. of mercury a smaller positive pressure is employed, such as from 1 to 3 cm. of water. The higher pressures have been used in patients with tremendous dyspnea, whose state suggested high intrapleural negative pressures, and the lower pressures in the exhausted comatose patient who presented a picture of imminent respiratory failure, in whom high negative pressures within the chest could be assumed to be absent because of the shallow respiration. Conscious patients vary in their subjective response to increased pressure. They are aware of the increased ease of inspiration and the increased muscular effort during expiration. In some, preference is expressed for increased pressure; for example, from 1 to 5 cm.; in others, minimal pressures of from 0.5 to 1 cm. are found more agreeable.

The history of the following case illustrates the use of helium in the two groups that have been discussed; namely, the state of more or less chronic wheezing, in which the bronchodilating effect of epinephrine was slight and temporary, and the acute severe condition of status asthmaticus in which the patient was comatose, pulseless and gravely ill, with complete refractoriness to epinephrine:

A woman, aged 54, had suffered intermittently from asthma for twenty years. Her allergic work-ups had always been negative. The relation of her asthma to infection had been suspected but never proved. For two months before she entered the hospital she had had more or less continuous wheezing at home with acute paroxysms as well. Epinephrine gave but slight transient relief. She had been in an oxygen tent for two weeks and had morphine intermittently. Her pulse became steadily faster and ran at an average rate of 140, at times 150. She was brought to the hospital in an ambulance. At the time of admission she was seen to be exhausted, dyspneic, orthopneic and cyanotic, with sibilant râles heard throughout the lungs. She obtained complete subjective relief with a disappearance of all râles during the inhalation of helium 80 per cent, oxygen 20 per cent, with from 0.5 to 3 cm. of water pressure. She was treated for periods of one-half to one hour at a time. During the intervals between treatment in the first two days the wheezing returned as soon as she was disconnected from the apparatus. On the second day she had an acute paroxysm, which was treated with 1 cc. of epinephrine. The attack was relieved but wheezing persisted afterward. At the end of five days she was free from all chronic wheezing. The onset of a mild paroxysm was controlled by 0.5 cc. of epinephrine and two days later by 50 mg. of ephedrine. Three weeks later, when the patient was getting up and about, attacks of asthma recurred, for which the patient took epinephrine. It is noteworthy that she preferred epinephrine, when it was effective, to helium, as the relief secured in an acute paroxysm by the inhalation of helium is at best only partial and does not do away with the spasm. Inhalations of helium were not therefore recommended, since the patient responded to epinephrine. Formerly, when the patient's respiratory reserve had become exhausted by continuous asthma the special function of helium was applicable.

In the course of the subsequent work-up of the patient, during the period when she had been taking from 2 to 3 cc. of epinephrine daily, an intracutaneous skin test of staphylococcus vaccine was made. She showed within twenty minutes a reddened area about the size of a quarter (24 mm.) at the site of the test. On the following day a cellulitis of the forearm extending to the lower third of the arm was present.

This subsided two days later; during the night the patient went into status asthmaticus, was treated by repeated doses of epinephrine and morphine and in the morning was unconscious, unable to be aroused, breathing in shallow but labored fashion, with the pulse almost imperceptible. She was treated with inhalations of 20 per cent oxygen and 80 per cent helium with a mask and mouthpiece at from 1 to 2 cm. of pressure; alphalobeline, 25 mg., was given to counteract the effect of morphine; 75 cc. of 50 per cent dextrose was given intravenously to increase the pulse (and circulation) volume, and 0.8 Gm. of caffeine with sodium benzoate. At the end of two and a half hours the patient was free from asthma except for a slight wheeze, she was conscious, and the pulse was of good quality. In patients with status asthmaticus, morphine is at times a dangerous drug, as the effort to breathe against the severe bronchial spasm may be diminished without at the same time altering the degree of bronchiolar constriction, thereby promoting a dangerous degree of asphyxia. In this instance the patient regained her sensitiveness to epinephrine and to ephedrine in two days and required helium on only one day subsequently, when a continuous wheeze was present. She was subsequently given high dilutions of staphylococcus vaccine and a mixed vaccine and discharged from the hospital with only slight wheezing at night, which was controlled with ephedrine. Follow up five months later has shown steady improvement.

Five of the eighteen patients at one or more of their admissions to the hospital presented a picture of status asthmaticus of such severity as to suggest a fatal outcome. They had become completely unresponsive to epinephrine and to all other measures; cardiac and respiratory failure appeared imminent when treatment was begun. In each case objective improvement followed inhalation of the helium-oxygen mixture, either immediately or within half an hour after beginning of treatment, increasing progressively until epinephrine sensitivity was completely restored in a period which varied between two to five hours and two to five days. One of the patients who had appeared moribund as a result of prolonged asthma prior to admission regained epinephrine sensitivity after one day of treatment; after discharge from the hospital severe asthmatic seizures returned, and one year later he died during a spell of continuous asthma. From what records we were able to obtain, he took epinephrine in large doses for twelve days with progressively diminishing relief. Three other deaths were reported to me in patients who went into status asthmaticus during the same year. Although in a given instance it may be impossible to state that a fatal outcome would necessarily have taken place, the clinical picture warranted such an impression, as it did in the three cases described by Maytum, Prickman and Boothby.[14] In ten other cases in which almost complete refractoriness to epinephrine was present coincident with preexisting prolonged more or less continuous asthma, inhalations of helium with oxygen were followed by subjective and objective evidence of improvement with restoration of epinephrine sensitivity in from one to five days of treatment. In three cases epinephrine refractoriness did not disappear, although the failure to obtain a good result in these instances appeared to be in large part traceable to lack of cooperation on the part of the patients. The length of improvement following helium and oxygen treatment is extremely variable; in some cases severe asthma recurred in from two to four weeks, whereas in others no return of severe symptoms has taken place in from six months to two years.

The search for an etiologic factor must necessarily be a continuous project in many of these very severe cases. The function of helium is viewed as a method of restoring epinephrine sensitivity when it has been lost and not as a substitute for epinephrine when it is effective.

OBSTRUCTIVE CONDITIONS OF THE TRACHEA, LARYNX AND BRONCHI

In a previous clinical communication[3] the relief of obstructive dyspnea in patients with constriction of the trachea or larynx was reported. The results in twenty-one consecutive cases will be summarized.[20] The principles already discussed apply in the main, with certain modifications, to obstructive conditions in the upper air passages. Deflation of the smaller bronchial tubes occurs in the asthma patient in expiration, owing to the termination of the inflating effect of the negative pressure within the chest and also in some cases to a positive compressing expiratory force which locks air in the alveoli. In the respiratory tubes outside the chest this effect is absent and furthermore the cartilaginous rings of themselves maintain the integrity of the lumen. In this circumstance may be found the explanation of the relatively prolonged expiration in asthma patients as compared to patients with laryngeal or tracheal obstruction. In the former an attempt to hurry the outflow of air by forcible expiration might collapse the delicate bronchiolar structures and thereby increase the difficulty; expiration, therefore, is generally observed as a more passive, prolonged process in asthma than in obstruction in the upper air passages, where no such dilemma exists. For that reason positive pressure was thought more applicable to asthma than to lesions outside the chest.

The clinical indication for the use of helium in this group is mainly to be found in children in whom inflammatory swelling of the larynx and trachea, due to infection, foreign body or instrumentation, is frequent, although similar conditions occur in adults. Tracheotomy in infants, particularly with previous infection, is so likely to lead to bronchopneumonia that we have attempted to secure through the inhalation of a helium-oxygen mixture sufficient relief from dyspnea and rest to the respiratory musculature as to obviate the need for surgery. Even in adults in whom transient laryngeal edema occurred as the result of x-ray therapy of a carcinomatous lesion or of instrumentation, helium-oxygen inhalation has been tried first, with the cooperation of the laryngologic staff.

Of twenty-one patients treated, five must be excluded either because they were moribund or because helium had to be withdrawn prematurely. There were sixteen remaining patients in whom an opportunity for clinical judgment was present by the pediatrician, the laryngologist and myself.[21] There were three cases in which the degree of obstruction was such as to prevent adequate relief from the inhalation of helium. Through the use of helium mixed with a variable proportion of oxygen, it should be possible to compensate for approximately a 50 per cent constriction in the lumen of the tubal respiratory system, but it is obvious that obstruction may proceed to a point which will nullify the function of the gas. In eight cases the administration of helium with oxygen was temporarily helpful, at times for as long as eight days, but eventually the progress of the lesion necessitated tracheotomy. Four of these patients recovered and four died. In none of the cases

20. A more detailed report including the interrelation between inhalational therapy and laryngology will be published separately by Kernan and myself.

21. The author is indebted to Dr. Rustin McIntosh, director of the Babies' Hospital in the Columbia Medical Center, for his cooperation in making this material available.

was there any reason to believe that earlier tracheotomy would have improved the prognosis, whereas the reverse was conceivably true, that a further trial of helium therapy might have been preferable to tracheotomy. The remaining five patients were relieved of the major portion of their dyspnea and recovered without tracheotomy, with an ultimate resolution of the inflammatory swelling causative of the obstruction. It might be mentioned that retraction signs, either above or below the sternum with intercostal retraction, were present in all patients treated.

The function of helium in this group is to provide relief to obstructive dyspnea arising from inflammatory swelling and in that way avert tracheotomy. The laryngologist, however, cannot be dispensed with, as his attendance is necessary during the process of treatment as well as in the eventuality that the degree of relief is insufficient. Even when relief is only partial and retraction signs persist after inauguration of helium therapy, a conservative attitude toward tracheotomy is warranted, for in some instances a slight decrease in the edema increases markedly the effectiveness of helium and the child may be spared a surgical procedure which might itself produce complications.

EMPHYSEMA, BRONCHIECTASIS, PULMONARY FIBROSIS

The clinical illnesses emphysema, bronchiectasis and pulmonary fibrosis, so interrelated anatomically and etiologically, have in many instances a common pathophysiologic factor; namely, bronchial or bronchiolar obstruction. Owing to spasm, edematous swelling, or collapse or distortion of the lumen, the smaller bronchial tubes and alveolar ducts mechanically hinder the movement of air in and out of the alveolar spaces. The existence of bronchiolar spasm in cases of emphysema was discussed by Hoover,[22] who employed epinephrine as a measure of its presence. Richards and Kournand[23] have taken measurements that show significant increases in vital capacity after epinephrine. The therapeutic usefulness of helium is therefore based primarily on the existence of varying degrees of obstruction in these cases. There is the additional theoretical assumption that better oxygenation will take place with the employment of a 21 per cent oxygen-79 per cent helium mixture than with air, because of the increased diffusion of the lighter gas. In figure 4 a comparison is made between inhaling successively air, 100 per cent oxygen, and a 21 per cent oxygen-79 per cent helium mixture (the latter with 8 cm. of water pressure). It will be seen that the pulmonary ventilation in air was 15,750 cc. per minute with a tidal volume of 716 cc.; in 100 per cent oxygen the pulmonary ventilation dropped to 10,700 cc., with a tidal volume of 563 cc.; with 21 per cent oxygen-79 per cent helium the pulmonary ventilation was 10,600 cc., the tidal volume 444 cc. The marked drop in ventilation due to 100 per cent oxygen is the basis for the therapeutic reconditioning of these patients and is worth emphasizing, because of the common medical attitude of apathy and hopelessness toward these patients. As discussed earlier in the paper, the stretching of the elastic elements of the lung during inspiration is in my view the pathophysiologic factor in the production of emphysema. Such an obvious reduction in ventilatory needs as the foregoing test indicated was made the basis of oxygen treatment, which in a week lowered the ventilation still further to 6 liters per minute. The paroxysmal cough that these patients endure appears to be in part maintained by anoxemia. Coughing raises the intra-alveolar oxygen concentration and also tends to inflate partially collapsed bronchioles. In cases under our observation, oxygen treatment has terminated or markedly decreased not only the cough but also the expectoration, which is frequently not the cause of coughing but a result.

The decrease in tidal volume and pulmonary ventilation during the inhalation of helium with oxygen is in part due to the increased pressure, but patients with emphysema in certain instances may become equally free from dyspnea by breathing either 100 per cent oxygen or 25 per cent oxygen and 75 per cent helium, illustrating the function of helium in counteracting the obstructive element in this condition.[24] In two cases, one of emphysema and one of asthma, in which an accidental pneumothorax had taken place, an exceedingly severe type of dyspnea resulted in which a mixture of 35 per cent oxygen and 65 per cent helium was followed by a degree of relief not obtained by pure oxygen or higher percentages of helium with lower oxygen concentrations.

For the more long continued treatment of emphysema, in which I now employ oxygen, the use of helium with oxygen would have substantial advantages. Sometimes the dyspnea of emphysema is not relieved until concentrations between 90 and 100 per cent oxygen are inhaled, when a similar degree of relief could have been obtained with lower oxygen percentages in the presence of helium instead of nitrogen. The present price of helium, until the government makes available a small part of its enormous supply, makes impracticable at the moment any long continued program of treatment of the emphysematous patient with helium-oxygen mixtures instead of pure oxygen.

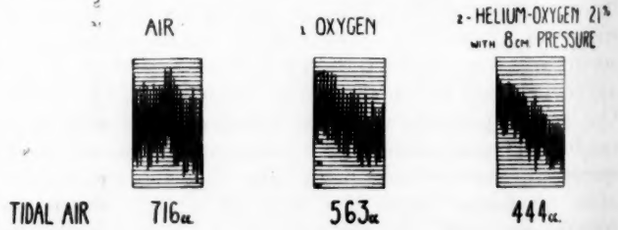

Fig. 4.—Decrease in pulmonary ventilation in a patient with emphysema and pulmonary fibrosis due to inhalation of (1) oxygen and (2) helium with oxygen under positive pressure.

SUMMARY AND CONCLUSIONS

Because of the low density of helium, a respirable mixture of helium with oxygen requires considerably less effort to breathe than air or oxygen in patients suffering from obstructive dyspnea.

There were eighteen cases of severe asthma and twenty-one cases of obstruction in the upper air passages in this series. In status asthmaticus the treatment may result in the saving of life, five cases in the series seem-

22. Hoover, C. F.: Respiratory Symptomatology, Nelson's Loose Leaf Medicine **3**: 383, 1923.
23. Richards, D. W., and Kournand, A., to be published.

24. The helpful effect of positive pressure in expiration as well as inspiration in patients with asthma and emphysema explains the clinical observation that some patients will purse their lips in such a way as to create an obstruction to expiration, as if they were blowing against a resistance. The purposeful nature of this at first sight extraordinary performance is confirmed by their own confession that they feel "easier in their breathing." The groan in pneumonia seems to me to have a purposeful significance also. It builds up a positive expiratory pressure against the pulmonary capillaries, tending to prevent exudation of serum into the alveoli. As will be described in a subsequent publication, pulmonary edema is susceptible of prevention in animals and relief in patients by inhalation of air under positive pressure.

ingly being in this group; in severe, more or less continuous asthma, in an amelioration of the disease with recovery of complete sensitiveness to epinephrine in patients who previously had become refractory to it, as occurred in ten additional cases. In obstruction of the pulmonary airway from the bronchiole to the pharynx, inhalation of helium with oxygen lessens the respiratory effort and aids ventilation of the lungs, in some instances thereby averting tracheotomy; five patients in this series recovered without tracheotomy. In patients in whom the obstruction is below the trachea, dyspnea may be relieved when tracheotomy itself would be unavailing.

The usefulness of helium with oxygen in emphysema, associated with bronchiectasis or fibrosis or both, is compared to the procedure when oxygen treatment alone is employed. Smaller concentrations of oxygen may produce similar restoration of pulmonary function when helium is used as the diluent of oxygen instead of nitrogen.

The clinical reaction to inhalation of helium with oxygen may be used as a diagnostic procedure to determine the presence or absence of obstruction in the pulmonary airway and associated pulmonary functions.

893 Park Avenue.

ABSTRACT OF DISCUSSION

DR. FRANCIS M. RACKEMANN, Boston: It is obvious that Dr. Barach has presented an important method for the treatment of very difficult situations. I should like to emphasize one point about asthma; namely, that the pathology depends on the formation of very tough and very tenacious mucous plugs in the medium sized and smaller bronchi. These plugs cause obstruction, which may be complete, producing real asphyxia, and death is not unknown. Patients with this condition may therefore be in very real danger. Up to now, their treatment has been very difficult, but those of us who must take care of patients with severe asthma should be very grateful to Dr. Barach for giving us this new method. His observations on the effect of increasing the pressure of the inspired air confirms the clinical impression that the sucking or pulling action of the thorax is much more potent in producing the symptoms and producing the emphysema than is the pushing action of forced expiration.

DR. C. K. MAYTUM, Rochester, Minn.: I congratulate Dr. Barach for presenting a most valuable method for relieving the symptoms of patients suffering from severe respiratory obstruction. My experience with helium and oxygen has not been as extensive as Dr. Barach's. I have used it only in the severest cases of asthma, that is, in the so-called status asthmaticus and the severe asthmatic attacks that follow the ingestion of certain drugs to which the patient is sensitive, in our cases acetylsalicylic acid. I have used it only as a last resort when all other methods have failed to relieve the patient's symptoms. I have now used it in four cases, and the results have been satisfactory and confirm those of Dr. Barach. Oxygen alone in such cases does very little either toward relieving the dyspnea or the cyanosis that is also present. However, in my cases, as with Dr. Barach's, when helium and oxygen was substituted for mixtures of air and oxygen, relief was almost immediately apparent. The breathing becomes much easier, with much less effort, and the patient can relax, which is an important factor in overcoming the symptoms in these cases. The cyanosis gradually lessens, and the attack gradually subsides. My patients also seem to be insensitive to epinephrine. Even large doses give little relief, and what relief is obtained is of very short duration. In my cases also, after the relief of the attack, the patients again reacted to the use of epinephrine in the ordinary dosage. I noted the same effect in 1931, in a few cases in which I relieved patients by colonic ether anesthesia. These patients, after relief from their asthmatic attacks, again became sensitive to epinephrine. It is unfortunate that the expense of helium and the technical difficulties in its administration must, at least at present, limit its use. I hope that future developments will make it more generally available and that there will be a substantial reduction in its cost.

DR. JOHN D. KERNAN, New York: There are many cases of transient laryngeal dyspnea, occurring principally in children, in which the attending physician feels that neither intubation nor tracheotomy is required. And yet these cases are distressing to observe, and the suffering of the patient is considerable. Helium and oxygen will promptly relieve them. There is another type of case in which the amount of obstruction is no greater than in the first class but in which the long continued obstruction is a source of danger. Lack of sleep, lack of ability to eat and take fluids, and the strain on the circulation tend after a certain time to exhaust the patient. These are cases in which intubation might be used. The use of helium and oxygen makes the use of intubation with its attendant dangers of bronchopneumonia and retention of the tube unnecessary. Even a few hours in the helium-oxygen tent would so restore the child's strength that further gas therapy would be unnecessary, although the obstruction to the breathing might not be entirely relieved. In cases of greater obstruction in which a tracheotomy might be required, the patient will often be carried along for several days. Prolonged treatment is not practical in those cases in which the cause of the obstruction may be permanent, such as in congenital narrowing of the trachea, tumors or webs in the larynx. These patients must be tracheotomized. But even here the gas therapy is of the greatest use, since doing a tracheotomy on a patient moribund from strangulation and exhaustion is a very different procedure from a tracheotomy performed on a patient protected from exhaustion by the use of the gases. That is one of the most important uses of helium and oxygen in laryngeal obstruction. Many patients are admitted to the hospital almost at the point of death, cyanotic, the lungs congested and heart dilated. These symptoms may be temporarily relieved by inhalations, the patient taken to the operating room with a gas mask on the face, and the operation done under as favorable circumstances as possible. The only relief that can be compared to this is that obtained by the passage of the bronchoscope and the performance of a tracheotomy with the bronchoscope in position. Briefly, helium-oxygen therapy is indicated (1) for the relief of symptoms even when intubation or tracheotomy is not required, (2) in more severe cases in which intubation or tracheotomy would be required if the gas were not available, and (3) in cases of such severe dyspnea that tracheotomy is required and yet on account of the severity of the symptoms cannot be safely done.

DR. FRANK H. LAHEY, Boston: I did not come to the medical section to relate my experiences with the management of asthma but rather to express my appreciation to Dr. Barach for the development of this method of introducing oxygen in patients who are so greatly in need of it, and to relate also the experience of our anesthetists who have taken up this suggestion of Dr. Barach and who now advantageously employ helium in certain of the cases with which we have to deal, goitrous patients with narrow tracheas, those with goiters that are intrathoracic in location, and those with the respiratory emergencies which not infrequently arise in thyroid surgery. Drs. Sise, Woodbridge and Eversole have now employed helium in a considerable number of cases. I am sure that within the last six months helium has saved the lives of at least three patients who have come to the clinic for operation with enormous intrathoracic goiters. When we have these very large and very deep intrathoracic goiters, extending sometimes nearly to the diaphragm, it becomes almost impossible to introduce an intratracheal catheter because of the distortion of the trachea. It therefore becomes almost impossible to have these patients get enough oxygen when anesthetized so that they can remain of good color. The employment of helium mixed with oxygen in these cases has resulted in a good return of color and permitted the operation to be completed. In emergencies in which there has been a collapse of the trachea in the middle of an operation on a goiter, the employment of helium and oxygen mixtures has permitted these patients to be put in such a condition that the intratracheal catheter could be introduced through the laryngoscope and the operation completed. I am prompted to come here and speak because of the possibility

that anesthetists throughout the country are not familiar with this application of helium and are not employing it in cases in which I am sure that it will save patients' lives. We now have a tank of helium attached to every anesthesia apparatus in the clinic because, when one has such an emergency, helium should be at hand and immediately available. This is a great advance. We surgeons are indebted to Dr. Barach, and I am sure that not only with asthmatic cases but with surgical cases it will save many lives.

DR. WILLIAM J. KERR, San Francisco: In our clinic we have had but a limited experience in the use of helium and oxygen in obstructions of the respiratory tract, but we have been very much interested and pleased with the results to date. In patients with obstruction or asthma the relief is often remarkable and the patient appears to be greatly benefited by the rest obtained and the ability to take proper nourishment. I hope that in the very near future some way will be found to have adequate equipment available in all hospitals for the use of helium equipment available in all hospitals for the use of helium or helium and oxygen, and that we shall be able to secure supplies from the one source in the country where it may be obained and at a very nominal figure; and that is from the federal government. It seems to me that helium should be put in the hands of competent physicians, because it is one of the adjuncts in saving lives.

DR. ALVAN L. BARACH, New York: The House of Representatives has passed a bill making government helium available at what will be a cost comparable to oxygen, but at the moment it is held up in the appropriations committee of the United States Senate. Whether it will go through there or not, at this moment I am unable to tell. Should it be passed in its original form, helium will be commonly available at a more reasonable cost, although it may now be obtained commercially and reused with more economy than when it was first presented.

PRESENT STATUS OF DIETARY REGIMENS IN URINARY INFECTIONS

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Urology, as one of the younger medical specialties, has made rapid advances and has a record of brilliant achievement. During the last forty years the surgical and diagnostic branches, aided by the inventive genius of men within and without the profession, have produced remarkable results. The medical side of urology, on the contrary, had advanced more slowly. Modern textbooks of urology attest to the rapid change in surgical practice and instrumental technic, but the lack of advance in the medical branch left open a fertile field for charlatans and drug promoters.

During the last five years, however, medical urology has progressed in two ways: first, by a more careful study of the organisms most frequently associated with urologic infections, and, second, by attempts at inhibiting the growth of those organisms with dietary therapy. In studying the causes and prevention of urinary calculi, emphasis has been placed on other causes besides the important fundamental one; namely, urinary stasis. Endocrine disturbances have been recognized as being a contributing factor, but dietetic excesses and deficiencies have proved of greatest importance.

Theoretically, the etiologic factors of infections of the urinary tract and urinary calculi are many and varied, but it is now recognized that trauma from crystalline elements formed in the kidney may be a contributing cause. For instance, it is well known that certain foods produce an increase in the calcium oxalate content of the urine. There is also another source of an oxaluria. Wilder states that, "in the presence of certain unusual flora, oxalic acid and other organic acids may be formed by fermentation of carbohydrates in the gastro-intestinal tract." The extensive use of yeast so popularly advertised may thus be a cause of increasing the crystalline elements in the urine. Several patients have been observed who passed numerous small oxalate calculi following the prolonged ingestion of yeast. With the excessive fermentation that must follow a diet containing a cake of yeast three times a day, sufficient change in carbohydrate metabolism may take place to increase the oxalates in the urine to a dangerous amount.

While important advances have been made in therapeutic measures involving the study of foods, and their preparation and combination, it must be pointed out that only a small portion of the population is being benefited at present by these recent discoveries. This is largely due to a lack of time necessary to apply this knowledge. When the average physician undertakes the complex problem of figuring the calories, carbohydrates, proteins, fats, fatty acid-dextrose ratio and 3 per cent vegetables and then adds to this the task of training a patient who, though interested, knows nothing of scientific food regulation, one understands the frequent use of the prescription blank in combating infections of the urinary tract. But the results produced by dietetics in urology have been sufficiently successful to make it imperative that this type of treatment be made more widely available. Wherever it is possible, these measures should be so simplified as to make them applicable to office practice. Hospitalization, diet kitchens and special dietary management, as applied in large medical centers, increase the cost of treatment till it becomes prohibitive for the majority of those afflicted.

Five years ago for the first time the ketogenic diet was given to a patient in an effort to control a very resistant recurrent cystitis and pyelitis in which the infecting organism was the colon bacillus.[1] For fourteen months previous to this, many different types of therapy had been applied at several medical centers with only temporary relief to the patient. The products of the ketogenic diet permanently eliminated the infecting organism from the urine in twelve days.

Since that time the result achieved in that one case has stimulated many other experiments and investigations. In an analysis of the first 200 instances in which this type of therapy was used, it was found successful in approximately two out of three instances. Statistics show that the ketogenic treatment has been even more successful in the child, possibly because the liver of the adult has a greater glycogen storage capacity.

Fuller[2] of London was the first to discover that beta-hydroxybutyric acid excreted in the urine by this altered dietary intake inhibited the growth of the infecting organism. It had already been recognized that, in addition to the change in diet, an increased acidity of the urine was a necessity for successful results. Several authors then reported experiments which showed that bacterial growth in the urinary tract would be inhibited by a concentration in the urine of 0.5 per cent beta-hydroxybutyric acid, and an acidity of the urine of p_H 5.2.

Two years ago an evaluation of the ketogenic treatment showed that its scope was limited. Many sufferers

Read before the Section on Urology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Clark, A. L.: Proc. Staff Meet., Mayo Clin. **6**: 605 (Oct. 14) 1931.
2. Fuller, A. T.: Lancet **1**: 855 (April 22) 1933.

from pyelitis or cystitis were unable to obtain careful and exact dietetic supervision. Accordingly a simplified method of dietary regimen was suggested in which the food intake consisted largely of 40 per cent cream and eggs.[3] The disadvantage of this simplified method is the gastro-intestinal upset that usually accompanies such an abnormal food intake. As an offset to this the course of treatment is shortened, thus minimizing the expense as to both time of medical supervision and dietary cost.

Nesbit[4] of Ann Arbor, Mich., suggested applying the acidosis and ketosis produced by a starvation diet to the treatment of infections of the urinary tract. In a series of 200 patients given this type of ketogenic diet, remarkable results were shown. The drawback to the starvation method is the length of time necessary to obtain ketosis sufficient to achieve satisfactory results. This is important in office practice. The

TABLE 1.—*Elaborate Ketogenic Diet*

GENERAL INSTRUCTIONS

1. Satisfactory results cannot be obtained unless this diet is followed absolutely as outlined.
2. All food must be measured carefully and accurately. A standard measuring cup, teaspoon and tablespoon must be used.
3. No food or beverage other than that listed is to be taken.
4. Eat no sugars or sweets of any kind. Saccharin, a substitute for sugar, may be used.
5. Coffee, tea and seasonings may be used as desired.
6. Bran wafers must have no food value and may be used as desired.
7. Do not chew gum or tobacco. Smoking is permitted.
8. Water should be taken only in moderate amounts.
9. No cathartics are to be used other than liquid petrolatum or bitter cascara. Magnesia magma or other sweet cathartics will cause failures.
10. Take no medicine unless prescribed by the physician.
11. If you become nauseated while on the diet, omit a meal or two, taking a half glass of tomato juice, half an orange or a glass of sour lemonade.

MENU PLAN

Include the following foods daily, and in the exact amounts specified.

Eggs	Two
Bacon	4 strips 6 inches long
Vegetables	1½ cups
Whipping cream (extra heavy)	1¼ cups
Butter or oil mayonnaise	5 tablespoons
Meat	2½ ounces, or 3" by 4" by ¼" thick

Menus 1, 2, 3 and 4 suggest possible combinations. Many interesting menus may be planned, however, when different vegetables are used and eggs and cream are prepared in various dishes.

POSSIBLE SUBSTITUTIONS

1. 2 tablespoons of cottage cheese plus 1 teaspoon of butter or oil mayonnaise may be substituted for one egg.
2. One ounce of American cheese or meat may be substituted for one egg.
3. ½ of a small orange may be substiuted for ½ cup of vegetables.

VEGETABLE LIST

Asparagus	Greens, beet
Beans, string	Greens, mustard
Broccoli	Greens, turnip
Brussels sprouts	Green peppers
Cauliflower	Rhubarb
Celery	Sauerkraut
Cucumbers	Spinach
Egg plant	Tomatoes

MENU 1

BREAKFAST	
Egg, fried	One
Bacon	4 strips 6" long
Bran wafers	As desired
Butter	1 tablespoon
Heavy whipping cream	¼ cup
Coffee or tea	If desired
LUNCH	
Soup	
Heavy whipping cream	¼ cup
Tomato	½ cup
Seasoning	
Salad	
Hard cooked egg on	One
Lettuce leaf	One
Oil mayonnaise	1 tablespoon
Bran wafers	As desired
Butter	1 tablespoon
DINNER	
Roast pork	3" x 4" x ¼"
Creamed cauliflower	
Cauliflower	½ cup
Heavy whipping cream	¼ cup
Lettuce salad	½ cup
Oil mayonnaise	1 tablespoon
Bran wafers	As desired
Butter	1 tablespoon

MENU 2

BREAKFAST	
Egg, poached	One
Bacon	4 strips 6" long
Bran wafers	As desired
Butter	1 tablespoon
Heavy whipping cream	¼ cup
Coffee or tea	As desired
LUNCH	
Soup	
Celery, diced	¼ cup
Heavy whipping cream	½ cup
Water	½ cup
Salad	
Orange sections	½ of a small orange
Oil mayonnaise	1 tablespoon
Lettuce leaf	One
Bran wafers	As desired
Butter	1 tablespoon
DINNER	
Broiled steak	3" x 4" x ¼"
String beans	½ cup
Lettuce salad	¼ cup
Oil mayonnaise	1 tablespoon
Bran wafers	As desired
Butter	1 tablespoon
Baked custard or custard ice cream	
Egg	One
Heavy whipping cream	½ cup
Water	¼ cup
Nutmeg & saccharin	If desired

MENU 3

BREAKFAST	
Scrambled eggs	
Egg	Two
Heavy whipping cream	¼ cup
Bran wafers	As desired
Butter	1 tablespoon
Heavy whipping cream	¼ cup
Coffee or tea	As desired
LUNCH	
Crisp bacon	4 strips 6" long
Spinach	½ cup
Lettuce and tomato salad	½ cup
Oil mayonnaise	1 tablespoon
Bran wafers	As desired
Butter	1 tablespoon
Iced coffee	
Coffee	As desired
Heavy whipping cream	¼ cup
DINNER	
Fish	3" x 4" x ¼"
Creamed celery	
Celery	½ cup
Heavy whipping cream	½ cup
Bran wafers	As desired
Butter	2 tablespoons

MENU 4

BREAKFAST	
Tomato juice	½ glass
Bacon	4 strips 6" long
Bran wafers	As desired
Butter	2 tablespoons
Heavy whipping cream	¼ cup
Coffee or tea	As desired
LUNCH	
Egg omelet	
Egg	One
Heavy whipping cream	2 tablespoons
Butter	2 tablespoons
Seasoning	As desired
Asparagus	½ cup
Cottage cheese salad	
Cottage cheese	2 heaping tablespoons
Heavy whipping cream	2 tablespoons
Oil mayonnaise	1 teaspoon
Bran wafers	As desired
Butter	2 tablespoons
DINNER	
Soup	
Heavy whipping cream	¼ cup
Spinach or tomato	¼ cup
Water	¼ cup
Chicken salad	
Diced chicken	⅓ cup
Diced celery	¼ cup
Lettuce leaf	One
Oil mayonnaise	2 tablespoons
Bran wafers	As desired
Butter	2 tablespoons

3. Clark, A. L., and Keltz, B. F.: A Simplified Treatment of Bacilluria, J. A. M. A. **104**: 289-291 (Jan. 26) 1935.

4. Nesbit, R. M.: Low Calory, Low Fat, Ketogenic Diet for Treatment of Infections of Urinary Tract, J. A. M. A. **105**: 1183-1184 (Oct. 12) 1935.

advantage of the starvation ketosis diet lies in the gastro-intestinal comfort of the patient. Nesbit maintains that after the first forty-eight hours the pangs of hunger are slight.

Herrold [5] has suggested a still more limited food intake which makes it possible to use the low calory ketogenic diet as an office procedure. So today for combating infections of the urinary tract there is available a simplified ketogenic diet, an elaborate ketogenic diet and a low calory ketogenic diet, each with its particular advantages but all producing results in medical urology hitherto not achieved.

Table 1 contains a suggestion for an elaborate ketogenic diet with a fatty acid-dextrose ratio of 4:1. It is essential that the list of important instructions be emphasized to the patient. A simplified ketogenic diet is suggested in table 2, and a low calory ketogenic diet, with sample menus, is given in table 3.[6]

In this day of rapid advances it is most probable that scientific research, having discovered the reason for the success of these dietary measures in combating infections, may lead to still greater simplification in urologic therapeutics. As already stated, Fuller recognized the important part played by beta-hydroxybutyric acid in inhibiting the growth of bacterial invaders. Starting with this fact, Rosenheim [7] suggested that a keto or hydroxy acid, if nontoxic, which would be excreted unchanged in the urine, might replace the ketogenic diet. After considering a number of such acids and comparing them with beta-hydroxybutyric acid in respect to their bacteriostatic powers in vitro, he has found that mandelic acid fulfils the theoretical requirements better than any of the other similar agents. This acid is a hydroxy acid; it is nontoxic and is excreted unaltered in the urine, which it renders bacteriostatic. The adult dosage suggested is 12 Gm. of mandelic acid daily in divided doses. At the same time the acidity of the urine is increased by giving either ammonium nitrate or ammonium chloride orally. Mandelic acid is soluble in water and is most satisfactorily given in the form of a sodium salt. From a 16 ounce (480 cc.) mixture containing 48 Gm. of mandelic acid (neutralized by 25.6 Gm. of sodium bicarbonate and flavored as desired), 1 ounce (30 cc.) is given four times a day as an average adult dose. With this, from 6 to 8 Gm. of ammonium chloride may be given daily in divided doses. During this medication the patient takes his normal general diet. From the results in a small series of patients it is apparent that the bacteriostatic power of the urine containing mandelic acid is sufficient to recommend this type of therapy before a diet is employed which causes such gastro-intestinal discomfort as does the ketogenic diet.

The sodium salt of mandelic acid is not unpleasant to take, and the only objection to this treatment is the large doses of ammonium chloride prescribed in conjunction with the acid. In my practice it has been employed with patients of various ages, from 3 years

TABLE 2.—*Simplified Ketogenic Diet*

General Instructions as in table 1.

MENU PLAN

Include the following foods daily, in the exact amounts specified.

Heavy whipping cream	1½ pints (3 cups)
Eggs	Six

Any combination of two eggs and one cup of cream may be used at each meal. Below are three suggestions. If desired, some cream may be used between meals with coffee or tea.

BREAKFAST	
Scrambled eggs	
Eggs	Two
Heavy whipping cream	¼ cup
Bran wafers	As desired
Heavy whipping cream	¼ cup
Butter	As desired
Coffee or tea	As desired
LUNCH	
Poached egg	One
Baked custard or custard ice cream	
Egg	One
Heavy whipping cream	1 cup
Water	¼ cup
Nutmeg and saccharin	If desired
Bran wafers	As desired
Butter	As desired
DINNER	
Egg omelet	
Eggs	Two
Heavy whipping cream	½ cup
Bran wafers	As desired
Iced coffee	
Coffee	As desired
Heavy whipping cream	½ cup
Butter	As desired

TABLE 3.—*Low Calory Ketogenic Diet*

General instructions as in table 1 and 2 except that butter or oil mayonnaise may be used in any quantity desired, to make the diet more palatable.

MENU PLAN

Include the following foods daily and in the exact amounts specified.

Eggs	Two
Crisp bacon	4 strips 6" long
Lean meat	2½ ounces, or 3" x 4" x ¼" thick
Vegetables (from list below)	2 cups
Whole milk or buttermilk	½ cup
Butter or oil mayonnaise	3 teaspoons, or more if desired

Possible substitutions same as in table 1.
Vegetable list same as in table 1.

MENU 1

BREAKFAST	
Tomato juice	½ cup
Egg, scrambled	One
Bacon, crisp	4 strips 6" long
Bran wafers	As desired
Butter	1 teaspoon
Coffee or tea	As desired
LUNCH	
Cauliflower	½ cup
Salad	
Sectioned orange	½ of a small orange
Lettuce leaf	One
Bran wafers	As desired
Butter or oil mayonnaise	1 teaspoon
Baked custard	
Egg	One
Whole milk	½ cup
Nutmeg or saccharin	If desired
DINNER	
Broiled steak	3" x 4" x ¼"
Asparagus	½ cup
Bran wafers	As desired
Butter	1 teaspoon

MENU 2

BREAKFAST	
Orange	½ of a small orange
Poached egg	One
Crisp bacon	4 strips 6" long
Bran wafers	As desired
Butter	1 teaspoon
Coffee or tea	If desired
LUNCH	
Spinach with	½ cup
Hard cooked egg	One
Bran wafers	As desired
Butter	1 teaspoon
Whole milk	½ cup
DINNER	
Roast beef	3" x 2" x ¼"
String beans	½ cup
Shredded lettuce	½ cup
Oil mayonnaise	If desired
Bran wafers	If desired
Butter	1 teaspoon
Tea	If desired

MENU 3

BREAKFAST	
Egg, soft cooked	One
Bacon, crisp	4 strips 6" long
Bran wafers	As desired
Butter	1 teaspoon
Coffee or tea	As desired

5. Herrold, Russell, to be published.

6. The author is indebted to Mrs. Marjorie Sewell, chief dietitian at the University Hospital, Oklahoma City, for her help and advice in the preparation of these diets and menus.

7. Rosenheim, M. L.: Lancet 1: 1032-1037 (May 4) 1935.

LUNCH

Soup	
Whole milk	½ cup
Celery, diced	¼ cup
Egg omelet	1 egg
Greens	¼ cup
Bran wafers	As desired
Butter	1 teaspoon

DINNER

Baked fish	3" x 4" x ¼"
Stewed tomatoes	½ cup
Lettuce, shredded	½ cup
Oil mayonnaise	If desired
Bran wafers	As desired
Butter	1 teaspoon

MENU 4

BREAKFAST

Orange	½ of a small orange
Eggs, scrambled	Two
Bran wafers	As desired
Butter	1 teaspoon
Coffee or tea	As desired

LUNCH

Crisp bacon	4 strips 6" long
Asparagus	½ cup
Lettuce and cucumber salad	½ cup
Oil mayonnaise	As desired
Bran wafers	As desired
Butter	1 teaspoon

DINNER

Soup	
Whole milk	½ cup
Tomato juice	¼ cup
Salad	
Chicken, diced	⅓ cup
Celery, diced	¼ cup
Lettuce leaf	One
Oil mayonnaise	As desired
Bran wafers	As desired
Butter	1 teaspoon

to 76 years, with no apparent toxic effects. The 3 year old child had had an acute bacillary cystitis and pyelitis four weeks before the mandelic acid was tried. At this time the infection was controlled to some extent with methenamine and sodium acid phosphate, but the infecting organism still remained in the urinary tract. A dosage for a 3 year old child, based on the adult dosage given, was prescribed for three days. The urine culture on the third day was sterile and the medication was discontinued. The patient has remained well.

In older patients it is necessary to continue the drug for considerably longer periods. Further studies as to the rapidity with which this acid is excreted by the kidneys will be necessary in order that the drug may be prescribed at just the right intervals to insure the highest uniform concentration in the urine during the twenty-four hour period.

The mandelic acid treatment seems to be another valuable addition to the armamentarium of urology, which has resulted from a closer cooperation with and better knowledge of dietetics.

SUMMARY AND CONCLUSIONS

1. Prolonged ingestion of yeast should be considered as a possible factor when calculi or an excessive amount of crystalline elements are present in the urinary tract.

2. It is essential that dietary therapy be simplified in order to reach the largest number of patients suffering from uncomplicated bacillary infections of the urinary tract.

3. Mandelic acid has proved to be an effective urinary antiseptic and should be tried before the ketogenic diet.

119 North Broadway.

ABSTRACT OF DISCUSSION

DR. WILLIAM F. BRAASCH, Rochester, Minn.: Dr. Clark was first in calling attention to the practical value of the ketogenic diet in treating urinary infection. Although this method has proved to be highly efficacious, unfortunately the technical difficulties involved in its application have prevented widespread employment. Simplification of the diet and adaptation to the patient's idiosyncrasies as well as other modifications, including those suggested by Nesbit, have made it more acceptable for general use. The ketogenic diet is apparently of value not alone in combating urinary infection. There is evidence that it may be of value in controlling infections in other portions of the body. I have observed several patients with pyelonephritis and coincident acute cholecystitis which were apparently controlled by means of the ketogenic diet. Efficient as ketosis proved to be in combating bacilluria, it is after all a crude and ponderous method of establishing urinary antisepsis. Although American urologists were first to show the bactericidal effect of ketonurine, it remained for English chemists to discover the chemical ingredients that caused it. When Fuller discovered that beta-oxybutyric acid was the bactericidal factor in ketonurine, he opened a new and promising field of urinary antisepsis. Rosenheim, in searching for an organic acid which could be assimilated and excreted without breaking down, discovered that mandelic acid had antiseptic qualities when excreted in the urine, similar to beta-oxybutyric acid. My associates and I have used mandelic acid in both children and adults in more than fifty cases. Judging from our experience, it is quite probable that it will largely supplant the ketogenic diet as a routine procedure. That it will displace it entirely, however, is open to doubt. It has been possible to effect complete disappearance of bacteria from the urine in many of our patients with urinary infection. However, it does not seem to be so thorough as ketosis in preventing reappearance of infection, since bacteriuria reappeared in some cases after several weeks. The two methods combined will be found to be more bactericidal than when either is used alone. In order to have bactericidal action, acidification of the urine will be necessary with mandelic acid as it has been with oxybutyric acid. Mandelic acid, together with the ketogenic diet, the high acid-ash diet, and the various modifications will unquestionably make it possible to control urinary infection in a high percentage of cases, particularly that group which has no complications. A new era of antisepsis has been revealed within the last few years, and progress along the lines of urinary acidification, together with organic acid elimination in the urine, present attractive vistas for further investigation.

DR. RICHARD CHUTE, Boston: I have had the opportunity of seeing the use of mandelic acid in a few cases with apparently brilliant results. The cases have been so few and followed for such a short time that I am unable to give any final data on them. I think, however, that a great deal will be heard about it in the next few years.

DR. CHARLES C. HIGGINS, Cleveland: Vitamin A is prescribed for two reasons: (1) to overcome deficiency in vitamin A if it is present and (2) for its specific effect on the epithelial structures. This effect is specific not only on the epithelium of the genito-urinary tract but also on the epithelium of the pulmonary and other mucous membranes. In the presence of vitamin A deficiency in the white rat, the p_H of the urine shifts strongly to the alkaline side; therefore the stones that are produced experimentally in the white rat are composed of calcium phosphate with traces of carbonate. If the phosphorus in the diet is decreased, a reversal in the chemical composition of the stone occurs and calcium carbonate with traces of phosphate are found. In patients, if a deficiency in vitamin A is present, it is not accompanied by a shift in the p_H of the urine to the alkaline side. As Dr. Braasch has emphasized, the dietary regimen is an additional procedure to be utilized in the management of patients with calculous disease. Obviously, infection must be eradicated, and I believe this should be accomplished before the patient leaves the hospital. In patients in whom we are able to demonstrate the presence of a urea splitting infection, we prescribe the ketogenic diet following operation. As soon as the infection is eradicated, we shift from the ketogenic diet over to the acid-ash diet, which is not conducive to the production of acetone, diacetic acid or beta-oxybutyric acid in the urine, or the alkaline-ash diet is prescribed. Whether the high vitamin A acid-ash or alkaline-ash diet is prescribed depends on the p_H of the urine secured from the kidney harboring the calculus and the chemical composition of the stone removed at operation. The patient can be maintained on these diets for a long period of time. It is important to remember that the acid-ash diet is not utilized

in all cases of calculous disease. If analysis of the stone shows it to be composed of cystine, xanthine or uric acid—salts that are precipitated in acid urine—the p_H must be shifted to the alkaline side postoperatively. A p_H of 6.8 suffices to maintain the uric acid and other acid salts in complete solution and below the point at which precipitation of phosphates and carbonates occurs. If stasis is demonstrated by the urogram, it must be correct postoperatively. A study of the p_H curves of normal individuals and those with calculous disease shows that the initial precipitation of salts in the urine occurs at approximately the same level; however, I believe that each patient should be individualized, the urine carefully examined, and the p_H estimated and maintained at a point at which the salts that are responsible for the formation of the original calculus are maintained in complete solution.

DR. J. K. ORMOND, Detroit: I should like to ask whether this mandelic acid is effective in coccic infections as well as in bacterial infections.

DR. ANSON L. CLARK, Oklahoma City: In answering the question of Dr. Ormond, apparently mandelic acid acts as a bacteriostatic agent in a rather similar way to the beta-hydroxybutyric acid produced by the ketogenic diet. In the adults it has been most successfully used in combating the bacillary infections, while in children it has been used satisfactorily in both the bacillary and the coccic types of infection. Patients in the younger age bracket must be able to excrete the mandelic acid in a larger concentration. At present mandelic acid is a high priced chemical, at wholesale prices costing about $45 a kilogram. To treat an adult patient from eight to ten days requires approximately 100 Gm. of the mandelic acid.

BRODIE'S ABSCESS OF RADIUS, DUE TO TYPHOID

REPORT OF A CASE

WILLIAM B. MARBURY, M.D.
AND
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Typhoid of the bones is one of the unusual types of inflammatory bone diseases. To be more specific, Murphy [1] states that out of a series of 700 cases of osteomyelitis only three were caused by typhoid. This amounts to 0.43 per cent, or one out of 233 cases. Also osteomyelitis complicating typhoid is not at all common, for in another series of cases of typhoid reported by Murphy there were only 164 cases of osteomyelitis complicating 18,840 cases of typhoid, or 0.82 per cent. So uncommon is this condition that it is not usually suspected unless there is a definite history of typhoid and the constitutional symptoms of the osteomyelitis are unusually mild; even then it is not often thought of until the bacteriologist grows typhoid bacilli from the pus.

The various bones of the skeleton vary in their susceptibility to typhoid invasion, and in a different way from their variation of susceptibility to the common pyogenic organisms, such as the staphylococcus and the streptococcus. Thus the ribs are the most common bones involved in a typhoid osteomyelitis, with the tibia holding second place and the spinal column third place. In a series of 533 typhoid bone lesions, the ribs were involved in 135 cases, the tibia in 127, the spine in 110, the femur in 33, the ulna in 18, the humerus in 15, the foot in 10, the pelvis in 9, the maxilla in 8, the sternum, clavicle and hand each in 7, the radius in 5, and the rest distributed among the remaining bones. The case that we are presenting in this paper is one involving the radius, a bone which is involved only once in 106 cases of osteomyelitis due to typhoid, and the frequency of this disease is thus seen to occur only once in more than 24,000 cases of osteomyelitis from all causes.

In bone disease following typhoid, the symptoms usually come on so late that the typhoid bacillus is seldom considered as the etiologic factor. Several cases have been reported in the literature in which the patients had typhoid anywhere from five to fourteen years before bone symptoms developed. The interval in the present case amounted to about ten years, during which time the patient had no symptoms whatever of bone involvement.

The bacteria found in pus taken from these cases of typhoid osteomyelitis vary. In ninety-nine cases the organisms isolated from the pus were as follows: B. typhosus, 71; pyogenic organisms alone, 15; no organisms, 7; paratyphoid strains, 3; B. typhosus and pyogenic organisms together, 2; B. typhosus and B. coli together, 1.

In the case here reported, the pathologic lesion consisted of an abscess in the medulla of the radius; in other words, Brodie's abscess. This lesion was first described by Dr. Brodie [2] in 1832, at which time he presented a paper before a medical society with several case reports. The manner in which he discovered this condition is interesting. His first patient was a man with intractable bone pain in the tibia; no remedy that Dr. Brodie tried had any effect, so he finally decided to amputate the man's leg. Later on he examined the leg in the laboratory and, on cutting through the bone longitudinally, he opened an abscess from which he obtained a drachm or two of dark pus. Then he realized that the amputation would probably not have been necessary had he known of the presence of the bone abscess, and in his subsequent cases he operated and drained the abscesses with good results.

Babcock, in his textbook on surgery, defined Brodie's abscess as a "bone cavity filled with serum or pus, lined by a fibrous membrane with surrounding sclerosed bone and a tendency toward obliteration of the adjacent medullary cavity." These abscesses usually occur nearer to the center of the metaphysis than toward its distal end, as is the case in acute pyogenic osteomyelitis.

The causative organism is usually the staphylococcus, but may be the streptococcus, the pneumococcus, B. coli, and rarely the typhoid bacillus. These organisms always arrive at the bone as a result of a hematologic metastasis from a distant focus of infection.

The symptoms of Brodie's abscess are boring, aching, osteocopic pain, referred to the center of the bone and aggravated by use, marked tenderness on pressure or percussion, intermittent limp, hydrops of the adjacent joint, and local enlargement of the bone and of the superficial veins. The overlying skin may be red and tense, with edema of the subjacent tissues, and elevation of the skin temperature. Constitutional symptoms are usually few.

A roentgenogram usually shows an area of rarefaction, surrounded by an area of increased density of the bone.

The diagnosis of Brodie's abscess is often difficult to make preoperatively; with a bony swelling, marked tenderness, continuous boring osteocopic pain, and absence of marked constitutional symptoms, this con-

1. Murphy, J. B.: Bone and Joint Disease in Relation to Typhoid Fever, Surg., Gynec. & Obst. **23**: 119, 1916.

2. Brodie, B. C.: An Account of Some Cases of Chronic Abscess of the Tibia, M. Chir. Tr. **17**: 238, 1832.

dition must always be kept in mind. In the differential diagnosis, gumma of the periosteum, malignant bone tumors, tuberculous periostitis and von Recklinghausen's disease are to be considered. Roentgen examination in these conditions is unusually helpful, as it gives a very distinctive picture in the various bone diseases.

The prognosis in Brodie's abscess is good if adequate drainage is supplied. Many times, however, especially in tuberculous or typhoid abscesses, a chronic sinus may remain for years. Many of them heal in the course of a few months.

Fig. 1.—Roentgen appearance of radius before operation.

The treatment of this condition is immediate operation, the chiseling away of the bony roof of the abscess, curetting and cauterizing of the cavity with pure phenol, followed by alcohol, and packing open with petrolatum or iodoform gauze. It is even better, if possible, to remove the entire abscess cavity wall, and then the wound may be closed tightly and healing occur by first intention. If the wound is packed open it is best to leave the pack in place until the bone has regenerated considerably, as this stimulates the bone formation and keeps the wound from closing too soon, thus preventing recurrence of the same condition. In those abscesses due to typhoid, typhoid vaccine has been given to advantage.

REPORT OF CASE

History.—H. W., a girl, aged 15 years, white, admitted to Emergency Hospital Dec. 6, 1935, complained of pain and swelling of the lower part of the left forearm.

Her present illness dated back to two months before this admission, at which time some pain and swelling developed in the left forearm. The swollen area was warm to the touch but showed no redness, and after one week the inflammation subsided. Following this illness the patient was clinically well for two months. Then on December 2, four days prior to her entrance to the hospital, a swelling appeared on the left forearm in the same place as the first one. This time the swelling was red, painful even when the arm was at rest, very tender, and throbbed continuously, and the patient stated that she felt "pins and needles" in the fingers of the left hand. The patient had no general symptoms of note other than a subfebrile temperature of 99.6 F.

The past history revealed very little. Outside of measles and mumps, there was one other disease of importance, which was typhoid, at the age of 5 years.

Examination.—On physical examination nothing was found except the local pathologic state of the left forearm. The tissues on the radial side of the forearm were tense and edematous at a point slightly below the junction of the lower and middle thirds. This swelling was very tender and appeared to be confined to the periradial tissues; along the whole radial side of the forearm there was some pain elicited on palpation. The skin overlying the area was of a dusky red hue, and the surface temperature was elevated. Almost any motion of the forearm, especially pronation or supination, resulted in a cry from the patient, and she held the forearm as though it were broken.

At this time a roentgenogram was taken which revealed an oval, slightly irregular, dark, translucent area within the shaft of the radius (fig. 1). The cortex around this dark area appeared to be somewhat thinner than that in the rest of the shaft and seemed to bulge outward slightly. The remainder of the bone appeared to be normal.

The impression at this time was that the patient had an infected bone cyst of some nature, or Brodie's abscess. Von Recklinghausen's disease of the bone was considered also as a possible diagnosis, but blood calcium and phosphorus studies did not confirm this condition, the calcium being 10 and the phosphorus 34, both of which are within normal limits.

Urinalysis consistently showed only a very faint trace of albumin and some clumped pus cells.

A blood count taken the day after admission showed a hemoglobin of 84 per cent, red blood cells 4,350,000 and white blood cells 10,100, of which 61 per cent were polymorphonuclears, 34 per cent lymphocytes; 4 per cent monocytes and 1 per cent eosinophils. The blood Wassermann reaction was negative.

Course.—The patient remained in the hospital ten days before it was decided to operate. During this time the temperature at no time exceeded 99.8 F., and the last six days it was normal. The forearm was kept in a splint constantly, as the slightest motion was painful.

Operation.—December 16 the patient was taken to the operating room and the forearm opened. The periosteum of the radius was pinkish and was softer and more vascular than usual. When the cortex was chiseled away, pale greenish, creamy pus was found under pressure within the cavity. The pus was evacuated and the interior of the cavity was swabbed with pure phenol, followed by alcohol and packed open with petrolatum gauze. A cast was applied.

A smear made at the time of the operation showed many pus cells and a culture taken at the same time disclosed typhoid bacilli. Five days after the operation a blood Widal test was done and showed agglutination against B. typhosus in dilutions ranging from 1 to 20 up as high as 1 to 320.

The postoperative course was uneventful and convalescence was rapid, there being no fever after the first postoperative day. December 23 a culture of the urine and feces was made here, but no typhoid bacilli were found. December 25 a sample of feces was sent for culture to the Walter Reed General Hospital. The report again came back negative. December 27 the patient was discharged in much improved condition and was referred to the orthopedic clinic for follow-up care. When the patient left the hospital the pain in her arm had practically subsided; when she was seen, Feb. 11, 1936, her arm felt well but was draining considerable serous material with a bad odor (Feb. 11, 1936). January 24 the gauze packing was removed. The wound showed a marked healing tendency, as shown by abundant healthy granulation tissue. January 27 an x-ray plate was taken (fig. 2) and the report was as follows: "Examination of the left wrist and lower forearm shows the cortex of the lateral aspect of the lower third of the radius to have been perforated. There is a rather marked elevation of the periosteum on both the mesial and lateral aspects and considerable absorption in the region of the wrist joint."

Fig. 2.—Roentgen appearance of radius after operation.

This patient has been seen several times since the last x-ray film was taken. April 1, healing was complete and union firm. There was no tenderness over the scar.

COMMENT

This case is a most unusual one. It demonstrates clearly that typhoid bacilli may and do remain quiescent in the human body for many years, only to be reactivated at a time when least suspected The ability of the body to throw out antibodies quickly when reinfection occurs in typhoid is well shown by the high titer of the blood Widal test in this case.

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ADRENAL VIRILISM

WILLIAM SAPHIR, M.D.
AND
MORRIS L. PARKER, M.D.
CHICAGO

An active sex principle of the adrenal cortex has not yet been successfully elaborated. There is, however, ample clinical evidence that this endocrine tissue supplies an internal secretion related to the sexual sphere. The types of hypergonadism described in the literature as hirsutism, virilism, adrenogenital syndrome and the Achard-Thiers syndrome have been proved in many cases to be associated with adrenal cortex tumors.

It is not intended here to enter into a review of the literature, which may be found in some recent publications,[1] but to refer briefly to a few communications pertinent to this study.

From the clinical evidence at hand, the function of the adrenal sex hormone is clear and unique. It stimulates the secondary sex characteristics not of the same sex but of the opposite sex. Thus in women are seen male hair distribution (bearded women), deep voice, amenorrhea, atrophic breasts, atrophic genitalia with elongated penis-like clitoris (pseudohermaphroditism); in men a female type of obesity, breast hypertrophy with milk secretion, atrophy of testes, and absence of libido.

The adrenal sex hormone, therefore, is distinctly different from the pituitary sex hormone, which stimulates the gonads, and from the gonadal hormones, which stimulate the secondary sex characteristics of the same sex.

In the present paper we describe a case of suprarenal virilism in a woman who was closely studied clinically, physiologically and histologically. It is believed that some facts of interest were found that may clarify this syndrome more definitely and may be helpful in recognizing similar clinical manifestations.

REPORT OF CASE

History.—Miss M. G., aged 15, admitted to the Michael Reese Hospital, service of Dr. M. L. Parker, June 16, 1935, had never been sick before. The menses started at the age of 12, were regular, and were of four weeks' interval. The family history was insignificant. About one year before there was sudden onset of amenorrhea, a gain in weight of 30 pounds (13.6 Kg.), growth of hair on the face, extremities and abdomen, and a deepening of the voice. No pains or discomfort were felt at any time. The patient and her parents were alarmed about her condition, which apparently was getting progressively worse.

Examination (abbreviated).—The patient was obese, the obesity being confined mainly to the trunk and face, the extremities being comparatively free. There were no abdominal striae; the skin was dry. There was considerable hypertrichosis, involving the cheeks, the upper and lower lip, the chin and the extremities; there was less hair growth on the abdomen and chest, and there was virile distribution of hair. The breasts were small and atrophic. The external genitalia were of normal appearance; the clitoris was small, not hypertrophic. On rectal examination no mass was palpable; the internal genital organs were apparently normal. Physical examination otherwise revealed perfectly normal conditions. The blood pressure varied from 110 to 130 systolic, 70 diastolic.

Laboratory Examination.—The urine, blood count and blood chemistry were normal. X-ray plates of the skull (sella) and a pyelogram showed no pathologic condition. Eye examination and visual field determinations were normal. Quantitative titration of the urine for gonadotropic substance revealed its absence in amounts exceeding 66 mouse units per liter. The method used was Zondek's alcohol precipitation method.[2] Estrogenic substance was found very markedly increased. A positive Allen-Doisy smear was obtained with 2 cc. of urine in forty-eight hours, indicating the excretion of 5,000 mouse units per liter.

Fig. 1.—Girdle obesity and hirsutism.

The diagnosis rested between Cushing's pituitary basophilism, adrenogenital syndrome, and arrhenoblastoma of the ovary. Because of the absence of the cardinal symptoms of Cushing's disease, such as hypertension, hyperglycemia, hyperglobulia, osteoporosis, negative x-ray appearance of sella and negative eye observations, the possibility of either an adrenal cortex hyperplasia or tumor, or an arrhenoblastoma of the ovary was considered. Both conditions are known to give rise to the marked heterosexual changes our case offered. Operation was suggested because of the continuous progression of symptoms and because of the possibility of an early malignant condition.

Operation (Dr. Parker).—July 21, a midline subumbilical incision was made. Exploration of the pelvis revealed a normally appearing uterus and normal tubes. The ovaries were of average size, the right somewhat larger than the left. In the right ovary, three pin-head sized cysts were visible. The ovary was therefore removed. Palpation of both kidneys showed them to be of normal size and consistency. Both adrenal glands were examined carefully by palpation. No enlargements, swellings, tumors or cysts were detected. The appendix showed evidence of chronic inflammation and was removed. The abdomen was closed in layers without drainage.

Histologic Examination (Dr. Otto Saphir).—Sections of the ovary revealed multiple, apparently degenerated, primordial follicles in the peripheral portions of the cortex and, in the deeper layers, follicles in various stages of maturation. Multiple cystic spaces were noted. Some of these contained eosinophilic amorphous débris and were lined by granulosa cells. Others were empty, their lining undulated and apparently formed by a vascularized theca layer. Corpora albicantia were fairly numerous. In hyalinized fibrous connective tissue at the periphery of one section was a circumscribed nest of cells that resembled the cortical cells of the adrenal. These cells had clear, vacuolated or finely granular eosinophilic cytoplasm. Delicate chromatin granules were diffusely distributed throughout the oval nuclei, some of which contained one or two large

From the medical and surgical departments of the Michael Reese Hospital.

1. Goldzieher, M. A., and Koster, Harry: Adrenal Cortical Hyperfunction, Am. J. Surg. **27**: 93 (Jan.) 1935. Walters, Waltman; Wilder, R. M., and Kepler, E. J.: Suprarenal Cortical Syndrome, with Presentation of Ten Cases, Ann. Surg. **100**: 670 (Oct.) 1934. Lesher, F. G.: A Comparison of the Pituitary Basophilic Syndrome and the Adrenal Corticogenital Syndrome, Quart. J. Med. **4**: 23 (Jan.) 1935. Bauer, J.: Der Einfluss der Nebennieren und Hypophyse auf Blutdruck-regulation und Umstimmung der Geschlechtscharaktere beim Menschen, Klin. Wchnschr. **14**: 361 (March 1) 1935.

2. Zondek, Bernhard: Die Hormone des Ovarium und des Hypophysenvorderlappen, Berlin, Julius Springer, 1931.

granules. The nuclear membranes were well defined, the cytoplasmic membranes clear, and the cells in immediate contact.

Course.—The patient made an uneventful recovery. On the fourth day following the operation, menstruation commenced. The regular menstrual cycle was resumed and has continued since (ten months). There was a slight reduction in weight, but no marked improvement of the hypertrichosis up to date. The increased estrogenic excretion disappeared. Four weeks after the operation no vaginal cornification was obtained in castrated mice with the injection of as much as 6 cc. of urine within 100 hours.

COMMENT

The cardinal symptoms of the case described were sudden onset of amenorrhea, gain in weight, and hirsutism. These symptoms may well be ascribed to either one of the three conditions: (1) adrenal cortex hyperactivity, whether a benign adenoma, hyperplasia, or a malignant hypernephroma; (2) Cushing's pituitary basophilism; (3) certain types of ovarian tumors called by Robert Meyer [3] arrhenoblastoma.

As to adrenal cortex disorder, it is well to remember the embryologic origin of this tissue. It is derived from the coelomic epithelium of the urogenital fold, which in later embryonic life divides into adrenal cortex and gonads. Adrenal cortex, ovaries and testes, therefore, derive from a common ancestry. This fact may well explain the heterosexual changes so frequently found in the adrenal-genital syndrome. It also explains the presence of aberrant adrenal cortical tissue anywhere along the original preformed urogenital "anlage." Indeed, such tissue has been found by Kolodny [4] in the retroperitoneal space in a typical case of adrenal virilism, by Marchand [5] in the ligamentum latum, and by

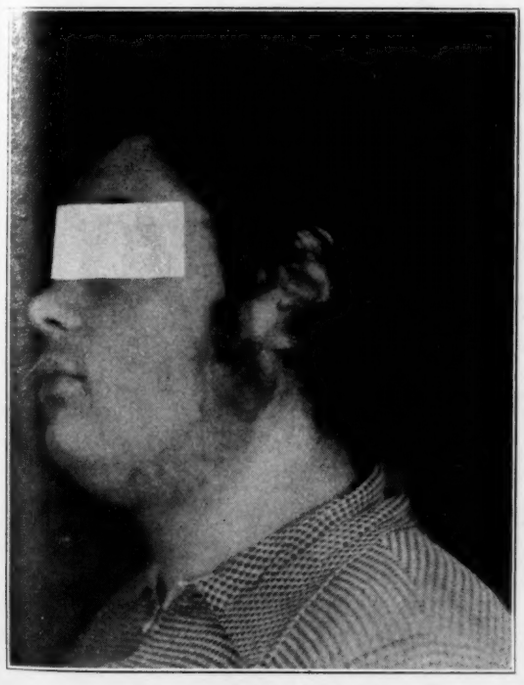

Fig. 2.—Facial hypertrichosis.

us within the ovary itself. It becomes clear, therefore, that the presence of seemingly normal adrenal glands which were palpated during operation does not rule out the diagnosis of suprarenal virilism. It also becomes apparent that partial or total adrenalectomy in such cases, as has been advocated, will be futile as long as the causative tumor or tissue responsible for the symptoms has not been removed.

The danger of such procedures has been pointed out in a recent editorial in THE JOURNAL.[6] The fact that our patient did not lose her hirsutism after operation leaves the possibility open that additional aberrant

Fig. 3.—Section of ovary containing nests of clear cells, morphologically similar to cells of the adrenal cortex.

adrenal cortex tissue may be present in other locations or that there may have been some unrecognized disease in the adrenals.

Our case, furthermore, offers points of interest as to the differential diagnosis of Cushing's syndrome of pituitary basophilism. Although obesity, amenorrhea and hirsutism are considered symptoms pertinent to Cushing's disease, other features such as hypertension, hyperglycemia, hyperglobulia, osteoporosis and purple abdominal striae were missing. A negative roentgenogram of the sella apparently can be evaluated as little as a negative pyelogram.

The marked excretion of estrogenic substance found in our patient seems to be an important sign in favor of adrenal cortex disturbance. This phenomenon, discovered by Frank,[7] may best be explained again by the common embryologic origin of both adrenal cortex and gonads. It may well be conceivable that the cells of the adrenal cortex may retain the faculty of producing gonadal hormones under pathologic conditions.

Because of the rarity of these conditions, titration of body fluids for gonadal and for gonadotropic substance has not yet been adequately undertaken in Cushing's disease and arrhenoblastoma of the ovary. It is to be hoped that further work along these lines will be helpful in analyzing such and similar clinical pictures, which heretofore offered grave difficulties in their diagnosis.

3. Meyer, Robert: Pathology of Some Special Ovarian Tumors and Their Relation to Sex Characteristics, Am. J. Obst. & Gynec. **22**: 697 (Nov.) 1931.

4. Kolodny, Anatole: Suprarenal Virilism in a Woman, J. A. M. A. **102**: 925 (March 24) 1934.

5. Marchand, quoted by Kolodny.[4]

6. In Defense of the Adrenals, editorial, J. A. M. A. **106**: 294 (Jan. 25) 1936.

7. Frank, R. T.: A Suggested Test for Functional Cortical Adrenal Tumor, Proc. Soc. Exper. Biol. & Med. **31**: 1204 (June) 1934.

SUMMARY AND CONCLUSIONS

1. Adrenal virilism is the clinical manifestation of hyperactivity of the adrenal cortex gland.

2. In a case of adrenal virilism the adrenals appeared to be normal, but aberrant adrenal cortex tissue was found within the ovary.

3. Increased function of adrenal cortex seems associated with increased excretion of estrogenic substance.

4. The clinical and physiologic manifestations of adrenal virilism may be explained on the basis of the embryologic origin of adrenal cortex.

104 South Michigan Avenue — 30 North Michigan Avenue.

THE TREATMENT OF LARGE PULMONARY ABSCESSES

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Four years ago my interest in the subject of large pulmonary abscesses was greatly stimulated when the question arose as to the advantages of draining a necrotic right upper lobe in the anterior axillary line instead of more posteriorly.

CASE 1.—A man, aged 32, a cook, had been very ill with a rapidly progressing and destructive pneumonia. When first seen he was propped up in bed under an oxygen tent, excited, dyspneic, pale, perspiring and nauseated from the foul odor of sputum. Roentgenograms (fig. 1) showed that the abscess was extensive, but fortunately the liquefying process had not perforated the oblique or horizontal fissures. In the semisitting position, in which the patient was most comfortable, it was evident that drainage anteriorly would be most dependent. Under local anesthesia a section of the fifth rib was removed in the anterior axillary line and soft rubber tubes were placed on the indurated horizontal pleura. Within six weeks the discharge had ceased and the walls of the large cavity, when observed through a fore-oblique cystoscope, were found to be granulating in a healthy manner, even far into the open bronchi. Removal of long segments of the first to the fifth ribs subperiosteally by a posterior approach resulted in obliteration of the space and rapid, complete and permanent healing of the sinus (fig. 2). The patient remains well after four years.

Subsequently I have had the opportunity to treat twenty more patients with pulmonary abscesses by surgical methods. In order to present a well balanced picture of the disease as it occurred in the hospital as a whole, I have prepared a table to show the etiology of seventy cases admitted since July 1, 1932 (table 1). There were forty-six (65.7 per cent) in which the cause could not be ascribed to anything more definite than a "cold," "influenza" or "pneumonia." In twenty (28.6 per cent) the abscesses followed operations, infected traumatic wounds or other extrapulmonary infections. Two cases occurred after diabetic coma, one following alcoholic stupor, and another in a premature infant.

Table 2 shows the results in the seventy cases. Fourteen patients were too ill for treatment of any kind and died. Eleven left the hospital against advice: one is well, eight are improved and two are unimproved. Eighteen were treated in the medical and pediatric services: two are well, eleven are improved and five are dead. Of my twenty-one personal patients, ten are well (no cough or sputum, wounds soundly healed), five are improved and six are dead. Six were treated in other surgical services: three are improved and three are dead.

The causes of death in my personal cases were as follows: in two, multiple abscesses with progressive pulmonary gangrene; in one, virulent empyema complicating pneumothorax, which occurred at the second stage of a two-stage drainage; in one, virulent empyema complicating pneumothorax, which occurred at the first stage of a proposed two-stage drainage; in one, virulent empyema in an old man, which occurred at the time of a one-stage drainage and, in one, hemolytic streptococcus septicemia, pericarditis and peritonitis, following a two-stage lobectomy for chronic abscess.

As a result of these personal experiences, good and bad, which parallel those described in the literature since the time of Murphy,[1] the following points in relation to the surgical treatment seem to me to be of the greatest importance:

1. Pulmonary tuberculosis, foreign body and tumor must be suspected in all cases and should be excluded by examinations of the sputum, bronchoscopy and biopsy of the pleura and lung.

2. Postural drainage should be avoided in patients who are very ill.[2]

3. Because of the danger of empyema, pyopneumothorax (with bronchopleural fistula and tension pneumothorax), hemorrhage into the cavity, cerebral air embolism, or abscess of the chest wall, thoracentesis should not be done.

FIG. 1 (case 1).—Abscess of the right upper lobe, drained through the fifth rib in the anterior axillary line. Thoracostomy by way of the fourth rib in the midclavicular line would have been preferable.

4. Patients with bronchopleural fistula and foul empyema secondary to lung abscess are more likely to recover with prompt open drainage than by repeated thoracentesis or catheter drainage with a water seal. In my experience, repeated aspirations have led to painful, debilitating phlegmons of the thoracic wall, while catheter drainage has been followed shortly by infection and leakage about the catheter. Violent shifts of intrapleural pressure occur if the tube becomes temporarily occluded.

5. Treatment by pneumothorax is dangerous except when the abscess is definitely so far removed from the periphery that it cannot possibly rupture into the pleural cavity.

6. Patients should not be operated on, as a rule, while there is pain. The pain indicates pleural inflammation, frequently with extension of a pneumonic process. The operation will be safer later.

7. With very few exceptions, surgical treatment should not be instituted within six weeks after the onset of the disease.

Because of limited space, many of the illustrations shown by lantern slides at the meeting have been omitted.

From the Department of Surgery, Louisville City Hospital, and the University of Louisville School of Medicine.

Read before the Section on Surgery, General and Abdominal, at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Murphy, J. B.: Surgery of the Lung, J. A. M. A. **31**: 281-294, 1898.

2. Brunn, Harold: Lung Abscess, J. A. M. A. **103**: 1999-2003 (Dec. 29) 1934.

8. However, constant cough with nausea, anorexia and insomnia, accompanied as they are by rapid loss of weight and strength, may in themselves indicate the necessity for prompt surgical drainage.[3]

9. In patients who fail to improve by nonsurgical therapy, surgical drainage should be carried out soon after the end of the six weeks period. Many complications are thus avoided and fibrosis and bronchiectasis are minimized.

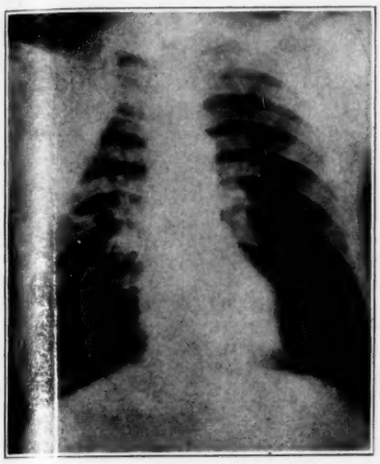

Fig. 2 (case 1).—A limited extrapleural thoracoplasty, performed nine weeks after the abscess was drained, obliterated the cavity and closed the sinus.

10. Operations for pulmonary abscess should be conducted under local anesthesia.

11. Small abscesses should always be drained by the two-stage method, and many large abscesses should be opened in this manner. (In one of my cases a hemostat, carelessly placed, opened the normal pleura near an abscess that was adherent over only a small area. Pneumothorax, foul empyema and death resulted.)

12. Many of the larger abscesses should be drained by the two-stage method, but when the pleural surfaces are involved over a wide area and the patient is very ill the preliminary stage should be dispensed with.

13. Drainage should be so planned that it will be dependent. This requires an accurate localization of the lowermost limits of the liquefaction and a knowledge of the confines of the lobes in relation to the thoracic wall.

TABLE 1.—*Etiology in Seventy Cases of Pulmonary Abscess*

	Number	Per Cent
"Colds," "influenza," "pneumonia"	46	65.7
Following operations, infected traumatic wounds and all extrapulmonary infections	20	28.6
Following diabetic coma, alcoholic intoxication, prematurity	4	5.7
Total	70	100.0

14. The best and most permanent results are secured when dependent drainage is maintained under constant supervision, preferably in the hospital, until the cavity is entirely healed. Excessive fibrosis, bronchiectasis, chronicity and recurrence are thus avoided.

In fifteen of my twenty-one cases, more than half of one or more lobes was involved. For my purposes in this paper, destruction of this extent defines roughly the large pulmonary abscesses.

The matter of long continued dependent drainage for large abscesses is of such importance that I have chosen to utilize most of my time to emphasize the point. Even with small abscesses of the right upper lobe, an anterior approach is the only logical one (fig. 3*A*). Posterior drainage is difficult and ineffective for this lobe. Midaxillary drainage, unless placed high, requires the traversing of a portion of the uninvolved lower lobe and the interlobar pleura and increases the length of the drainage tract. Furthermore, drainage by that route often does not permit the opening of the lowermost portion of the lobe. The sites of drainage that are recommended for right upper lobes of the usual size are the fourth or fifth ribs in the anterior axillary line or the third or fourth ribs in the midclavicular line. When the lobe is very small, drainage should be made occasionally as high as the second rib in the midclavicular line. Wherever the horizontal interlobar pleura may lie, an accurate determination of the position and direction of its slope can usually be made by fluoroscopy and x-ray examination. Of course, it is not uncommon for an abscess to perforate the interlobar pleura. Drainage must then be made through the ribs that overlie the most dependent portion of the involvement. Thus an upper lobe abscess may be drained through the lower lobe.

TABLE 2.—*Results in Seventy Cases of Pulmonary Abscess*

	Well	Improved	Unimproved	Dead	Total
Too ill for treatment of any kind	0	0	0	14	14
Left the hospital against advice	1	8	2	0	11
Treated in medical and pediatric services	2	11	0	5	18
Personal cases, all surgical	10 (47.6%)	5	0	6 (28.6%)	21
Other surgical cases	0	3	0	3	6
Totals	13	27	2	28	70

Experiences with large abscesses in the left upper lobe have convinced me that there also the anterior route is correct. The following case describes the troublesome course of a patient in whom the usual midaxillary approach was utilized:

CASE 2.—A stableman, aged 40, came to me in a precarious condition three weeks after the onset of pneumonia. Stereoscopic films of the chest showed multilocular abscess cavities with fluid levels in the upper portion of the left root area and in the left upper lobe extending to the periphery (fig. 4). Three centimeters of the fifth rib was removed in the midaxillary line. This route of drainage led through an inflammatory zone in the upper, lateral portion of the left lower lobe and forced traversing the thickened oblique pleura before entering the cavity of the abscess. The fever and expectoration subsided but the drainage was incomplete. Furthermore, the patient had been subjected to the possibility of an acute empyema in the lower portion of the thorax. Thereafter it was necessary to drain anteriorly through the second, third and fourth ribs in the midclavicular line and to carry out an extensive multistage thoracoplasty in order to cure the patient (figs. 5 and 6). The entire treatment extended over a period of eight months.

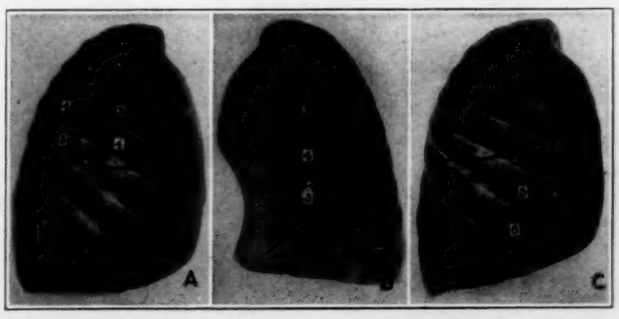

Fig. 3.—*A*, the sites suitable for the drainage of most abscesses of the right upper lobe are shown by the ribs numbered in the anterior axillary and midclavicular lines. *B*, drainage of the left upper lobe should begin at the third rib in the midclavicular line. *C*, the sites for opening the middle lobe are the fifth and sixth ribs lateral to the costochondral junction.

3. Chandler, F. G.: The Treatment of Lung Abscess, Brit. M. J. 1: 429-430 (March 2) 1935.

In striking contrast to the long hazardous convalescence in the case just discussed was the short and uncomplicated recovery in case 3:

CASE 3.—A mill operator, aged 28, had extensive destruction of the left upper lobe resulting from pneumonia. A lateral film showed the process confined to the left upper lobe and suggested the appropriateness of anterior drainage. This was carried out by excising a segment of the third rib in the midclavicular line and led directly into an immense, foul cavity filled with pus, necrotic lung and air, which passed back and forth through open bronchi with each respiration. The remaining portion of the lobe was atelectatic and lay inferiorly. Although the thoracostomy was not at the bottom of the cavity it was evident that the lower lobe and remainder of the upper lobe would soon elevate. It seemed unnecessary therefore to remove portions of the fourth and fifth ribs. One month after drainage the cavity was very small and only a little iodized oil entered the bronchial tree. The sinus closed promptly six and one-half weeks following the thoracostomy.

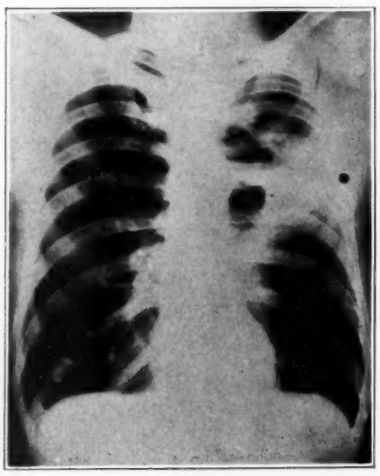

Fig. 4 (case 2).—A multilocular abscess in the left upper lobe. The lobe is destroyed almost completely. The black dot lies over the fifth rib in the midaxillary line where drainage was established, improperly.

The site of primary drainage that is recommended for these large abscesses of the left upper lobe is the third rib in the midclavicular line (fig. 3 *B*). The third rib is chosen rather than the fourth or fifth, because it lies over a safe zone well away from the pericardium. Having once entered the lung, if the process extends lower, one can remove segments of the fourth, fifth or even sixth or seventh ribs under guidance of the finger in order to drain the lingual portion of the lobe.

The middle lobe is not often affected except in conjunction with the upper or lower lobes and in abscesses at the root of the lung. The proper approach is through the fifth or sixth ribs lateral to the costochondral junction (fig. 3 *C*). This route avoids the pericardium and prevents chondritis. Carried more deeply, the approach provides excellent drainage for abscesses at the right root.

For the lower lobes (fig. 7 *A*), with the patient in a position approaching the upright and turned somewhat toward the affected side, dependent drainage is obtained by thoracostomy anywhere along the lowermost borders. Thus, on either the right or the left side, if the liquefaction is shown by physical examination, fluoroscopy and films to be greatest posteriorly, portions of the tenth and eleventh ribs are removed over the paravertebral gutter, or less often a segment of the tenth rib is excised below the angle of the scapula. If the liquefaction is most extensive laterally or anteriorly, the proper sites of drainage for the left lower lobe are through the bed of the ninth rib in the midaxillary line (fig. 7 *B*), the eighth rib in the anterior axillary line, or the seventh or sixth ribs still more anteriorly in the midclavicular line. On the right side (fig. 7 *C*), because of the interposition of the middle lobe, drainage of the most anterior portion of the lower lobe is carried out, as a rule, through the bed of the ninth rib in the midaxillary line or the eighth rib in the anterior axillary line. But for the lower lobes, as for the upper, there are large individual and age variations in the relationships of the ribs to the lobes, so that in each case the proper ribs for excision must be determined by fluoroscopy and x-ray examination in order to obtain the best dependent drainage.

If drainage is established at these dependent portions of the lower lobes, healing will usually occur eventually without thoracoplasty even when there is extensive destruction of pulmonary tissue. The structures, particularly the diaphragm and the heart, are more mobile than those surrounding the upper lobes and tend to obliterate the dead space, so that thoracoplasties over the lower lobes are necessary less often than over the upper lobes.

CASE 4.—In a grocery clerk, aged 36, whose abscess complicated bilateral bronchopneumonia, closure of a large abscess occurred without a thoracoplasty. Three centimeters of the right ninth and tenth ribs were resected below the angle of the scapula. The thickened pleura and a thin shell of consolidated lung were traversed and the offensive pus and necrotic pulmonary tissue were removed directly above the diaphragm. After the patient had regained his strength, the right phrenic nerve was crushed. Repeated observations of the cavity by the cystoscope through the sinus tract showed the casting off of the sloughing masses, the gradual expansion of the remaining pulmonary tissue, the rise of the diaphragm, the formation of clean granulations, and the contracture of scar tissue which pulled the parietal and visceral walls of the cavity together gradually. Iodized oil injected into the sinus tract seven weeks after operation showed reduction in the size of the cavity and two or three remaining communications with the bronchial tree. Thereafter the space closed progressively and healing was complete and permanent six weeks later. A roentgenogram taken one year after operation showed the diaphragm fixed at a high level.

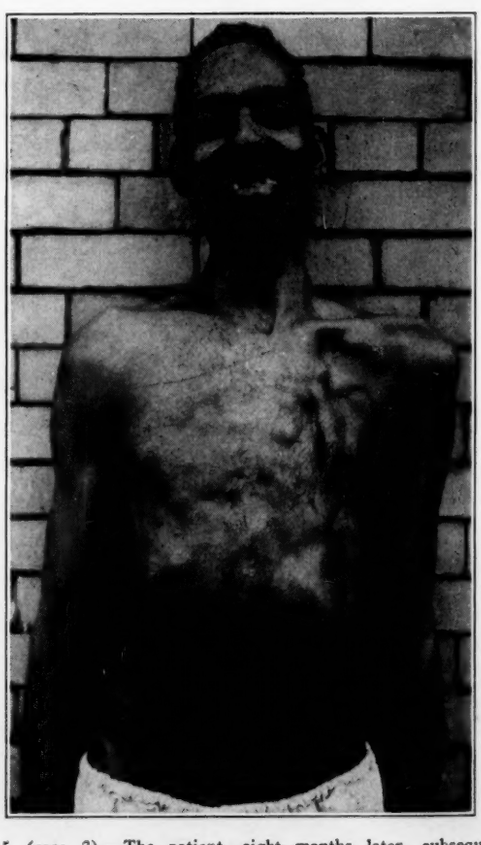

Fig. 5 (case 2).—The patient, eight months later, subsequently to effective anterior drainage and an extensive thoracoplasty.

CASE 5.—However, in a girl, aged 17, whose infection caused gangrene in an atelectatic, pneumonic left lower lobe, obliteration of the cavity failed to occur. Dependent drainage was obtained by the removal of a segment of the tenth rib below the angle of the scapula. The convalescence was extremely hazardous and the foul discharge from the sloughing surfaces did not cease entirely for three months. The result was a firmly fixed, fibrosed lung, perforated by many open bronchial fistulas. The diaphragm and pericardium were immobilized by scar tissue. The size and situation of the cavity and the communications with the bronchial tree were demonstrated in films made after the injection of iodized oil. There seemed to be no possibility that nature would close this space within a reasonable time. When observations through a cystoscope showed the tissues to be healthy, a regional thoracoplasty was performed in which segments of the sixth to the ninth rib, 11 cm. long, were excised, thus collapsing the roof. The sinus closed immediately and a film taken sixteen months later showed only fibrosis and regenerated ribs. This patient remains well three years after her illness.

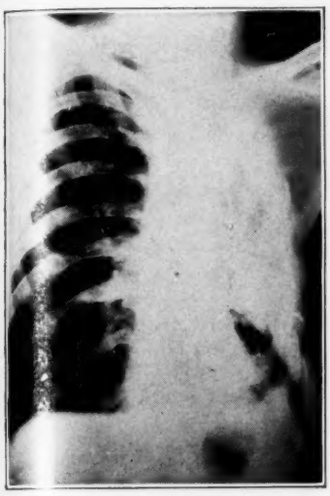

Fig. 6 (case 2).—The obliterated left upper lobe.

CASE 6.—A Negress, aged 36, did not do as well because, I think, the large posterior abscess of the left lower lobe was drained at too high a level. The sites of drainage were those recommended, but the diaphragm was exceptionally low and this feature was not taken sufficiently into account. The history suggested a complication of pneumonia, which she had had two months previously. Bronchoscopy showed no foreign body. A segment of the tenth rib was excised below the angle of the scapula. Multilocular cavities in a dense, atelectatic lung were found and drained, leaving large wide open bronchial fistulas. At a second operation one month later the wound was enlarged and the vertebral portions of the tenth and eleventh ribs were removed. Still the diaphragm had not been reached. Three months later the patient continued to raise a moderate amount of sputum, and the honeycombed lung was actively suppurating. A long segment of the ninth rib was resected to provide wide exposure, and a large mass of the consolidated, chronically infected lung was removed with the endotherm. At the same time the diaphragm was paralyzed. The suppuration continued, and from this time on the patient refused further operations. I have followed her with interest for the ten months since that time. After four months the output of sputum decreased to zero and she began to gain weight and strength. However, she has continued to require daily dressings. The cavity extends upward paravertebrally for about 6 cm. Everywhere above the diaphragmatic portion it is perfectly free from suppuration, but with each cough pus exudes from the lowermost bronchi. In order to effect a cure it will be necessary to remove the remaining rim of suppurating lung, which lies against the diaphragm below the level of the wound.

When there is pneumonitis surrounding an abscess, the limits of the disease are often difficult to determine; but by draining dependently within the limits of pleural involvement, provision is made for the liquefaction of portions of the lung that may not as yet be definitely involved. When open drainage is made for a small abscess, the site of the operation must be determined to a great extent by the position of the lesion, but it is frequently possible to place the opening near one of the sites of drainage that are preferable for large abscesses.

As a rule, abscesses at the root of the lung which do not involve any one lobe and which require open drainage are best approached either anteriorly or posteriorly low in the chest by two-stage drainage. However, a large chronic abscess centrally placed but involving definitely a single lobe may be treated by lobectomy without preliminary external drainage. This plan of treatment was followed in case 7:

CASE 7.—A Negro girl, aged 22, had a postpneumonic, centrally placed abscess of the right lower lobe, of one year's duration, which failed to respond to treatment by bronchoscopic aspiration, pneumothorax and paralysis of the diaphragm. Following a preliminary pneumolysis and the production of adhesions over the upper and middle lobes, the lower lobe was removed by dissection. A film taken four months later showed that the heart, diaphragm and other lobes had obliterated the dead space.

SUMMARY

Attention has been directed to fourteen points that I consider to be of the greatest importance in relation to the surgical treatment of pulmonary abscesses.

Emphasis is placed on long continued, dependent drainage, under hospital care, until the cavity of the abscess is entirely obliterated. Fibrosis, bronchiectasis, chronicity and recurrences are thus avoided. During these periods of hospitalization it is interesting and instructive to observe the healing cavities repeatedly through an ordinary fore-oblique cystoscope passed through the wound of operation.

For most cases the ideal sites of drainage for large abscesses are, for the right upper lobe, the third or fourth rib in the midclavicular line; for the middle lobe, the fifth or sixth rib lateral to the costochondral junction; for the left upper lobe, the third rib in the midclavicular line lateral to the pericardium, with removal of lower ribs under direct guidance of the finger if necessary; for the lower lobes posteriorly and laterally, the tenth and eleventh ribs over the paravertebral gutter, or the tenth rib below the angle of the scapula or the ninth rib in the midaxillary line; for the left lower lobe anteriorly, the eighth rib in the anterior axillary line or the seventh and sixth ribs in the midclavicular line; for the right lower lobe anteriorly, the eighth rib in the anterior axillary line. There are individual and age variations, and elevation of the diaphragm due to atelectasis and fibrosis must be taken into consideration when the site of drainage for chronic abscesses is chosen.

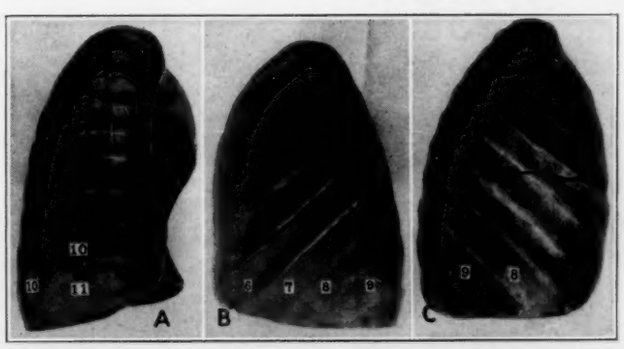

Fig. 7.—*A*, large abscesses, which are placed posteriorly in the lower lobes, are drained through the tenth and eleventh ribs over the paravertebral gutter, occasionally even lower. *B*, when the greatest destruction is in the lateral or anterior portion of the left lower lobe, thoracostomy is established through the ninth, eighth, seventh or sixth ribs between the midaxillary and midclavicular lines. *C*, on the right side, large abscesses of the lower lobe that involve the lateral and anterior portions are drained through the ninth rib in the midaxillary line or the eighth rib in the anterior axillary line.

Among my twenty-one patients with pulmonary abscess treated surgically during the past four years, ten are well, five are improved and six are dead. This mortality rate of 28.6 per cent should be improved.

ABSTRACT OF DISCUSSION

DR. ALFRED BLALOCK, Nashville, Tenn.: It is important to realize that there are marked variations in the clinical course and in the pathologic changes caused by lung abscesses. Some patients recover spontaneously, others do not respond favorably to any treatment. Each case is a problem in itself. One of the most important points connected with the treatment of a lung abscess consists in determining when the more conservative methods should be abandoned and when surgical drainage should be used. The trend at the present time appears to be toward earlier operation. This has the advantage of lessening the likelihood of the development of bronchiectasis and of the late complications associated with abscesses. On the other hand, if one operates too early, one is forced to open through an area of edematous lung with poor resistance to infection. This is likely to result in an extension of the infection. Operation should be postponed until there is a well developed delimiting pyogenic membrane. In general, it is better to wait at least six weeks following the onset before attempting drainage and it is probably wiser to extend this period to three months. The two important points in the operative technic are dependent drainage and the entrance into the cavity with as little damage to normal pulmonary tissue as possible. Dr. Bird has pointed out that there are large individual and age variations in the relationships of the ribs to the lobes and that in each case the proper ribs to be resected should be determined by fluoroscopy and x-ray examinations. It is generally stated that it is important to determine if possible whether or not there are adhesions between the two pleural surfaces at the proposed site of drainage. This has probably been overemphasized, since it is usually safer, even in the presence of adhesions, to perform the drainage in two stages. Extremely important is an ample opening in the chest wall, so as to avoid working in the dark and so that the entire superficial area of the abscess may be within reach. If it is found that the incision is not ideally located for drainage, it should be enlarged at once. If heavy muscles overlie the cavity, they should be divided at right angles. At least one and usually several ribs, including the periosteum, should be resected. The cavity should be as completely deroofed as seems feasible, with an attempt always to have the external part of the opening larger than the more internal portion. The drainage of pulmonary infections differs from that of abscess in most parts of the body in the desirability for free access to the entire cavity in order that possible bleeding points may be visualized and connections with neighboring pockets of pus may be enlarged. One of the distressing complications that I have encountered far too frequently is air embolism. Usually this has not resulted fatally. With further improvements in the technic of lobectomy, it is entirely possible that this procedure will largely replace that of surgical drainage.

DR. PETER B. SALATICH, New Orleans: All know how dangerous these abscesses of the lung are. I had some experience, especially during the influenza epidemic, with the use of vaccines. The effect is gratifying, not so much in large abscesses but in smaller ones. I do not mean the use of vaccine as recommended by the manufacturers in small doses. I commence the treatment with 0.25 cc. and rapidly increase the dose. The next day I give 0.5 cc. If no reaction takes place, I give 1 cc., then 2 cc., and up to 5 cc. When 5 cc. is reached, I repeat the dose every second or third day. I have had the opportunity of observing these cases with the x-rays every two or three days and I find that these abscesses disappear under the vaccine therapy with no other form of treatment.

DR. CLARENCE E. BIRD, Louisville, Ky.: I have had no experience in the use of vaccines in the treatment of pulmonary abscesses and am unable to comment on the advisability of their use. I should judge, however, that the use of vaccines would be one of those measures which might be tried together with bronchoscopic drainage, adequate bed rest and other types of careful medical treatment, for a period, until it is found that the patient either does or does not improve.

RÔLE OF SYPHILIS OF THE NERVOUS SYSTEM IN THE PRODUCTION OF MENTAL DISEASE

A SURVEY OF THE VARIOUS FORMS OF NEUROSYPHILIS OCCURRING AT THE BOSTON PSYCHOPATHIC HOSPITAL FROM 1912 TO 1934

MERRILL MOORE, M.D.
AND
H. HOUSTON MERRITT, M.D.
BOSTON

Accurate statements with regard to the rôle of syphilis in the production of mental disease are rare in medical literature. The figures cited by Kraepelin and Lange [1] refer only to dementia paralytica and were collected mainly in the days before the common use of the Wassermann reaction. For this reason it has been thought advisable to survey the records of all admissions to the Boston Psychopathic Hospital since its opening in June 1912 in order to determine what rôle syphilis played in the production of mental disorder among patients observed there. The records of the Boston Psychopathic Hospital are particularly suited for such analysis because this hospital is an important and active center for diagnosis and the material that passes through it represents a cross section of mental diseases as they occur in the community at large. In addition there is relatively little selection in the patients who are brought there for observation and for the great majority of them admission to the Boston Psychopathic Hospital constitutes the first hospitalization in the course of their mental disturbance.

TABLE 1.—*Correction of Original Figure of Admissions*

Total admissions for years 1912 to 1934	40,848
Less readmissions (19.3% of 40,848)	7,884
Total first admissions	32,964
Less those diagnosed "without psychosis"	6,527*
Total first admissions with psychosis	26,437

* 19.8 per cent of 32,964.

The total admissions to the Boston Psychopathic Hospital from June 24, 1912, to August 1, 1934, were 40,848. An analysis of the hospital's diagnosis files showed that 2,832 of these 40,848 were found to be suffering from some form of syphilis of the nervous system. This figure represents 2,832 different patients, since each of them was analyzed individually and all readmissions were excluded. The diagnosis in these 2,832 patients was based on the observations on neurologic examination in conjunction with the results of examination of the cerebrospinal fluid obtained by lumbar puncture. Since lumbar puncture is not performed as a routine in every case admitted, and since it is well known that active syphilis of the central nervous system can exist and produce mental symptoms without objective signs on neurologic examination, there are undoubtedly a certain number of cases in which a syphilitic infection of the central nervous system was present but not detected.

In determining the rôle of syphilis as a cause of mental disease it was necessary to determine the actual

We are indebted to Mr. Sidney Levin for assistance in the preparation of this material.

From the Department of Diseases of the Nervous System, Harvard Medical School, the Boston Psychopathic Hospital and the Neurological Unit of the Boston City Hospital.

1. Kraepelin, E., and Lange, J.: Psychiatrie, Leipzig, Johann Barth, 1927.

number of patients admitted to the Boston Psychopathic Hospital with a diagnosis of mental disease. In order to arrive at this figure it was necessary to exclude from the 40,848 admissions all readmissions as well as all patients who were diagnosed as "without psychosis." Similarly, it was necessary to exclude from the 2,832 patients with neurosyphilis those who were diagnosed as "without psychosis" and those in whom the psychosis was considered to be unrelated to the syphilitic infection of the nervous system.

TABLE 2.—*Classification of the 364 Patients with Neurosyphilis in Whom Syphilis of the Nervous System Did Not Produce "Mental Disease"* *

Type of Mental Disorder	Tabes Dorsalis	Meningovascular Neurosyphilis	Undifferentiated Types of Neurosyphilis	Totals
Symptomatic psychoses	0	2	6	8
Psychoses due to organic brain disease other than neurosyphilis	2	2	5	9
Psychoses due to exogenous toxins	0	0	1	1
Affective psychoses	0	0	4	4
Schizophrenic psychoses	0	2	7	9
Conditions of mental defect	0	3	10	13
Conditions of mental instability	1	2	6	9
Without psychosis	72	101	138	311
Totals	75	112	177	364

* The sex distribution in this group of cases of neurosyphilis is as follows: 237, or 65 per cent, males, and 127, or 35 per cent, females.

It was not possible to arrive at an absolutely accurate figure with regard to the corrections for the total admissions for the entire period of this study, since statistics are obtainable only since 1928.[2] For the seven year period 1928 to 1934, readmissions constituted 19.3 per cent of the total admissions. Patients diagnosed "without psychosis" constituted 19.8 per cent of the first admissions. We are of the opinion that the figures for these seven years give a fairly representative picture and can be used for the entire period of this study. The result of correction of the original figure of 40,848 for these two factors is given in table 1.

The diagnosis of syphilis of the central nervous system was made in 2,832 of these patients, subdivided as follows: dementia paralytica, 2,251 patients; meningovascular neurosyphilis, 250; undifferentiated types of neurosyphilis, 190; tabes dorsalis, seventy-five, and the tabetic form of dementia paralytica, sixty-six.

TABLE 3.—*Cause of Psychosis in 2,468 Patients*

	Patients	Per Cent
Dementia paralytica	2,251	91.2
Tabetic form of dementia paralytica	66	2.7
Meningovascular neurosyphilis	138	5.6
Undifferentiated neurosyphilis	13	0.5
	2,468	100.0

It is necessary now to exclude from these 2,832 patients with neurosyphilis 311 who were diagnosed as "without psychosis" and fifty-three in whom the psychosis was considered to be unrelated to the syphilitic infection of the nervous system, giving a total of 364 patients, as shown in table 2. When the 364 (table 2) are excluded from the 2,832 patients with neurosyphilis, there remain 2,468 in whom the syphilitic infection of the nervous system was considered as the primary etiologic factor in the production of the mental disease.

2. These figures are furnished by Dr. Neil A. Dayton, director of the Division of Statistics and Research Department of Mental Diseases, Commonwealth of Massachusetts.

The 2,468 patients in whom the syphilitic infection of the nervous system was the cause of their psychosis were divided as in table 3.

Table 3 shows that dementia paralytica and the tabetic form of dementia paralytica constitute by far the great majority (approximately 94 per cent) of the patients with mental disease due to neurosyphilis and that other forms of neurosyphilis played a very minor rôle in the production of mental disease.

Therefore, if 26,437 represents the actual number of first admissions of psychotic patients and 2,468 the number in whom syphilis of the nervous system was the cause of the psychosis, then syphilis of the nervous system is found to be the cause of the mental disease in 9.3 per cent.

SUMMARY

1. Syphilis of the central nervous system was considered as the cause of the mental disease in 2,468 patients admitted to the Boston Psychopathic Hospital in the first twenty-two years of its existence—from 1912 to 1934.

2. When corrections are made in the total admissions for the number of patients who were found to be "not psychotic" and for the number of readmissions, syphilis of the nervous system was considered the cause of mental disease in 9.3 per cent of the total.

3. Dementia paralytica and the tabetic form of dementia paralytica constituted 94 per cent of the 2,468 cases of mental disease due to syphilis of the central nervous system.

384 Commonwealth Avenue.

INTERNAL HERNIA FOLLOWING ROUND LIGAMENT SUSPENSION

REPORT OF TWO CASES

M. A. MICHAEL, M.D.
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In describing the ventral suspension operation for retroversion such as the Gilliam, Olshausen or the Graves modification of the latter, Graves,[1] Crossan [2] and Miller [3] all call attention to the danger of intestinal obstruction from internal herniation following this type of suspension but feel that the occurrence of this sequel is exaggerated. In the original Gilliam operation the round ligaments are brought by a perforating clamp through the peritoneum, muscle and fascia and fastened to the outer side of the fascia. In the Simpson modification of the Gilliam operation the round ligaments are brought through the peritoneum to the internal ring and make intestinal complications less likely. In either the Gilliam or the Olshausen operation there is created a potential hernial ring between the point of attachment of the round ligament to the peritoneum and its exit by way of the internal ring to the inguinal canal. Under this arch a loop of intestine can easily fall and become obstructed. Crossan suggests avoiding this complication by using the puckering suture of Ferguson to obliterate the space created between the distal portion of the round ligament and the abdominal wall.

In searching the literature on intestinal obstruction following round ligament suspension, one finds that

1. Graves, W. P.: Gynecology (Operation for Retroversion, p. 803), Philadelphia, W. B. Saunders Company, 1928.
2. Crossan, A. S.: Operative Gynecology, St. Louis, C. V. Mosby Company, 1920.
3. Miller, C. J.: Retrodisplacements, in Davis, C. H.: Gynecology and Obstetrics, vol. 11, 8.31.

there is a sparsity of reports; this might be due to the fact either that the condition occurs infrequently or that it has not been always reported. Though cases of internal hernia are not uncommon, here one is usually dealing with herniation into one of the various intra-abdominal fossae. McIver [4] studied the cases of acute intestinal obstruction occurring at the Massachusetts General Hospital from 1918 to 1927 and out of forty-five cases of late postoperative obstruction eight followed pelvic operations, but the type of operation was not mentioned. In a larger series of cases McIver [5] found internal hernia to comprise only 0.9 per cent of 335 cases.

In 1924 Pidcock [6] reported a case of intestinal obstruction in which the round ligament acted as the obstructing band but there was no previous operative procedure; the patient was about fourteen days post partum.

Petersen [7] of Denmark reported one case similar to those to be reported here, following anterior round ligament suspension of the Gilliam type. In Petersen's case a loop of small intestine was caught between the left round ligament and the uterus. Resection of the bowel was necessary and the patient made an uneventful recovery. Among 256 such suspension operations in Denmark from 1920 to 1925, Petersen found that two cases of obstruction had occurred. He recommended the Webster type of operation as a safer procedure.

However, Pemberton and Sager [6] reported two cases in 1929 following the Webster-Baldy type of suspension for retroversion. In these cases the herniation was through the aperture created in the broad ligament through which the round ligaments are introduced. Webster in his original description mentions this as a possibility and recommends suturing these openings in the broad ligament to the round ligament.

Searle [8] reported a case of obstruction following a ventral fixation operation (not round ligament suspension), in which the uterus was sutured to the anterior abdominal wall.

Many cases of herniation through abnormal openings or fenestrae in the broad ligament have been reported, but the round ligament was not a factor in any of these cases.

Two cases of intestinal obstruction following round ligament suspension have occurred in the service of Dr. F. B. Block at the Jewish Hospital during the past year and will now be reported.

REPORT OF CASES

Case 1.—A. C., a white woman, aged 38, well developed and well nourished, admitted to the Jewish Hospital Nov. 16, 1934, complained chiefly of abdominal pain. Four days before admission there was soreness of the abdomen; the bowel movements were normal until the day before admission, when she had her last bowel movement. On this day she experienced acute pain in the abdomen, generalized at first, then more pronounced in the lower right quadrant. She was nauseated but did not vomit. The pain increased the next day; nausea and vomiting also occurred. The patient stated that she was well until a year before, when she had an attack similar to the present one, but it passed off in a few days. Five years before admission she had a uterine suspension operation. On admission her temperature was 98.2 F., pulse 70. On physical examination the patient was well nourished and complained of acute abdominal pain. No jaundice was present. Examination of the head, neck and chest was negative. The abdomen was flat and soft; no masses were palpable. Tenderness was present in the right lower quadrant and to a lesser degree in the left lower quadrant. The blood pressure was 120 systolic, 70 diastolic. The blood count revealed white blood cells 24,000, polymorphonuclears 90 per cent and lymphocytes 10 per cent. The urine was alkaline, with a specific gravity of 1.024; albumin was 4 plus with the acetic acid test. A flat x-ray film of the abdomen gave evidence of intestinal obstruction.

Under spinal anesthesia through a midline incision the abdomen was opened; a collapsed terminal ileum and distended jejunum were found. In the pelvis a knuckle of ileum was strangulated within the space created by the terminal portion of the broad ligament, the anterior abdominal wall and the left surface of the uterus (suspension operation site). The herniated bowel was freed, and the vessels leading to the ileum were found to be thrombosed; about 10 inches of gangrenous bowel was resected, and an end-to-end anastomosis was performed. Then an ileostomy proximal to the anastomosis was made and a No. 14 French catheter inserted. With the exception of a phlebitis of the left leg the patient made a fairly normal recovery and was discharged from the hospital December 5, twenty days after her operation.

Although not relevant to the present report, the patient returned to the hospital two days later with signs of intestinal obstruction; she was operated on and a loop of bowel was found adherent to the line of the former incision and obstructed. A lateral anastomosis was done around the obstruction, the loop being left in place. The patient left the hospital in two weeks and has been in good health since.

Case 2.—T. C., an Italian woman, aged 42, admitted to the service of Dr. Block, Oct. 27, 1935, complained of severe abdominal pain beginning at noon on the day of admission. She had been vomiting since the onset and seemed prostrated. Past medical history revealed that the patient had been until recently under treatment for syphilis. She had had an abdominal operation three years previously. On admission the physical examination showed: temperature 97.3 F., pulse 88, blood pressure 170 systolic, 94 diastolic. Examination was essentially negative except for the abdomen, which showed tenderness in the left lower quadrant; peristalsis was practically normal. Under ether anesthesia through a midline incision the abdomen was opened and about 18 inches of dark red distended bowel was seen, a portion of which was locked between the right round ligament and the abdominal wall, resulting from a previous fixation operation. The round ligament was cut and each end ligated, thus releasing the bowel; the color and tone of the latter having returned to a fairly normal condition, it was replaced and the abdomen closed. The patient made a normal recovery and was discharged November 11, thirteen days after operation.

SUMMARY

Many cases of internal hernia through the broad ligament, either postoperatively after the Webster-Baldy type of suspension or through fenestrae, have been reported.

Only three other cases of internal hernia following a round ligament suspension of the Gilliam type have been found reported in the literature, although the occurrence seems such a likely one.

Two cases of internal hernia following ventral round ligament suspension were seen in the service of Dr. Block. As a method of prevention when this type of suspension is done, it is the routine in Dr. Block's service that the space between the distal portion of the round ligament and the abdominal wall be obliterated by suturing these two structures together.

Clearview and Broad streets.

4. McIver, M. A.: Acute Intestinal Obstruction, Arch. Surg. **25**: 1106 (Dec.) 1932.
5. McIver, M. A.: Acute Intestinal Obstruction, Am. J. Surg. **19**: 163-191 (Jan.) 1933.
6. Cited by Masson, J. C., and Atkinson, Walter: Hernias into the Broad Ligament, Proc. Staff Meet., Mayo Clin. **8**: 293 (May 10) 1933.
7. Petersen, E.: Occlusion intestinale aiguë après l'operation de Gjilliam, Acta obst. et gynec. Scandinav. **6**: 13-27, 1927.
8. Searle, W. N.: A Commentary on the Operative Treatment of Prolapse with a Report of a Death from Intestinal Obstruction After Ventral Fixation, J. Obst. & Gynaec., Brit. Emp. **41**: 69-77 (Feb.) 1934.

FIBROSITIS

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Much of the medical activity of the present generation, more particularly I believe in America, has been occupied in discovering how to estimate numerically the results of scientific research, and in finding out what type of measurement it is profitable to make. In most branches of medicine centuries of accurate observation have brought the subject up to the point where numerical description has become fruitful.

The scientific study of the chronic rheumatic diseases however has not passed beyond the stage at which the work of a Linnaeus would be a fresh landmark. In the realms of our knowledge of etiology much soil is virgin. The real credentials of medical science however lie in its capacity to yield information which is a guide to prevention or to practical treatment, and such being the case the empirical investigation of theories and therapeutic agents must also be granted a legitimate place in this, and indeed in any, branch of medicine until such time as it shall with truth be described as an exact science. Fibrositis is the term given by Sir William Gowers, toward the end of the last century, to an inflammatory reaction of fibrous supporting tissue to extraneous poisons either toxic or bacterial. Stockman and Renton later described the typical lesion: nodular or bandlike thickenings in the affected fibrous tissue, in the fascia lining the muscles or joints, or sometimes embedded in the substance of the muscles themselves. In the latter case they can only be felt when the muscles are in a state of relaxation after the passing of the acute attack.

Fibrositis may attack fibrous tissue wherever it is situated, and since such tissue may occur almost anywhere in the body the manifestations of this disease are protean. Roughly the situations in which it occurs with frequency may be thus classified:

1. Subcutaneous tissue—"panniculitis"—which will include the areolar and adipose tissue found in this situation. It will be seen in such cases that the skin loses its resilience and gets tied down to the connective tissue, dimpling like an orange skin when pinched. "Chilliness," a loss of tactile sensibility, a diminished response to faradic stimulation and suppression of sweating may also be found in this condition. Fatty tumors may sometimes form but are, as Stockman pointed out, only incidental to the main morbid process.

2. Intramuscular, which will include inflammation of the tissue that separates the fascial muscular planes ("myositis"), the lining of the bursae ("bursitis"), and the periarticular fibrous tissue ("capsulitis").

3. The fibrous sheaths of the chief nerve trunks, such as the sciatic or the brachial nerves ("interstitial neuritis").

Fibrositis in all these situations will be characterized by pain and limitation of movement, the pain being principally localized to the structures involved. Deformity will seldom result as is usual in the articular types of disease. Fibrositis is commonest in sites in which a combination of strain and chill occur most usually. This will tend to be in sites which are fairly superficial and where muscular planes merge into tendons or aponeuroses, since these portions of any muscle both have a poorer blood supply and are less "elastic" than the more fleshy portions. Common situations are therefore the lumbar region (lumbago), the back of the neck, the shoulder, the scalp ("rheumatic headaches") and the elbow (certain forms of "tennis elbow"). Less common sites which will when affected often give rise to mistaken diagnosis are the attachment of the iliocostalis muscle to the lower six ribs, and the subcutaneous tissue of the precordial area. I have on several occasions been able to reverse a diagnosis of morbus cordis by discovering small tender nodules in this situation from which the pain has been found to radiate.

The pathology of the condition is necessarily somewhat vague, since the majority of sufferers will not consent to a biopsy of their nodules. A few examinations of this sort are however on record. The nodule, although typical of this condition from a clinical point of view, shows no typical pathologic structure. It is with difficulty dissected out, and when this has been accomplished the report of a histologic examination will generally be to the effect that inflamed scar tissue or "unhealthy" fibrous tissue, with no characteristic plan, is to be seen. Poynton also reported perivascular fibrosis. Their structure has not therefore the same appearance as that of the Aschoff nodules of acute rheumatism. The fibrous areolar tissue carries blood vessels and lymphatics to parts which are more functionally active but has itself a very limited blood supply. The result of this is that the lymphatics, being anatomically vulnerable to pressure, get considerably occluded during the process of scarring after the acute period is passed. The nutrient blood vessels are less vulnerable but can in most cases be seen to be thickened, while interstitial changes are also to be found in the nerve twigs locally. The modern tendency is thus to separate them entirely from the nodules of acute rheumatic fever. Whatever the actual etiology of fibrositis may be, the background will nearly always be found to reveal chronic fatigue or strain.

Clinically there appear to be two stages in most cases of fibrositis: 1. The stage of effusion, which may perhaps be likened to an internal form of urticaria. Where this is fairly superficial, a puffy swelling may be seen. 2. The stage of organization, during which the serofibrinous exudate gets partially absorbed, while the residue becomes invaded by fibroblasts, and a low grade fibrosis results forming intramuscular and interfascial adhesions and, later, palpable nodules. These nodules are not invariably painful to the touch unless a nerve twig is implicated, but it is noticeable that the severity of any case of (say) lumbago depends on the number and the extent of the nodules present, so far that the liability to relapse and to exacerbation is apparently directly proportional to these factors.

In addition to the pain associated with fibrositis, a further frequent complaint is of muscular stiffness, which generally persists even after the pain has disappeared. This stiffness is difficult to explain but is accounted for by some authorities as being due to the muscular hypertonus, which can be seen to exist in all acute cases. The muscles are unable to relax swiftly and completely and so the products of fatigue accumulate and the "habit" will persist even after the causative pain has been eliminated. Other authorities maintain that the cause is intramuscular adhesions, resulting from the period of exudation, which have to be stretched or absorbed before the affected muscles can resume normal function. Still other observers maintain

Read at the Mayo Clinic, June 12, 1936.

that this stiffness results from compression of the lymphatics, and so stasis in the muscular lymphatic drainage system.

The most common forms of fibrositis are named according to their anatomic site, lumbago being perhaps the most typical form. "Sciatica" may also be of fibrositic origin, although this form should always be distinguishable from a true sciatic neuritis. Among the points of distinction between the two types may be mentioned that when the fibrositic form is at fault the pain is referred to the hamstring muscles and not to the nerve trunk (which is not even tender until later). There will be no anesthesia or paresthesias in the area of the distribution of the nerve, and the ankle jerk will not be affected. The pain is less lancinating and radiating, the subjective sensation being rather one of local soreness, tenseness and muscular stiffness, which is aggravated by muscular action. Finally, if muscular relaxation can be obtained, but not otherwise, nodules will be detected.

The causation of fibrositis is still a matter for dispute. It would seem clear however that it either results directly from bacterial invasion of the tissues locally (toxic focus) or else is the result of the sensitization of the fibrous tissues to some group of toxins, which may be either of bacterial or metabolic origin ("allergy"). The bulk of the evidence suggests that the latter explanation is in the majority of cases the more correct one. It seems moreover that in this case the toxins are probably of a protein nature. If this explanation is the correct one it will clarify the traditional association between fibrositis and gout as well as the seasonal incidence, which has been noticed by Thompson and Gordon and others in fibrositis.

The late L. J. Llewellwyn believed that the origins of fibrositis were intimately connected with a preexisting subthyroidic state. He pointed out that in hypothyroidism the first symptoms were those of vasomotor and vasosecretor instability; for example, cold extremities, poor circulation, erratic sweating and often actual Raynaud phenomona. He stated moreover that in the majority of his cases he had confirmed the presence of either enlarged or shrunken thyroid glands. An association between most forms of rheumatic diseases and thyroid disorders earlier in life is certainly common in my experience, but careful control work will be necessary before this can be regarded as more than an occasional or contributing factor in this disease group. Ray suggested that in those cases in which direct focal infection is apparently causative the upper respiratory tract and teeth will account for localization of the disease to the upper portion of the body, while where the lower limbs and trunk are affected the causative factor may be found in the bowel. Stockman has also pointed out the frequent association between mucomembranous colitis and fibrositis.

It has been said in the past by those who object to the theory of allergic sensitization that if this should be the case it would be difficult to account for the selective action of the inflammation for fibrous tissue. It has long been realized however that the selection of specific tissue is actually a characteristic of a large number of diseases now believed to fall into this category.

TREATMENT

For the purposes of treatment, fibrositis might with advantage be divided somewhat as follows into three groups:

1. Primary fibrositis; the type which is being discussed in this paper.

2. Symptomatic fibrositis, by which is meant fibrositis which merely indicates the presence of some more deep-seated lesion. Examples of this are encountered in cases of spondylitis ankylopoietica, rheumatoid (atrophic) arthritis, diabetes, and often trauma.

3. Senile fibrositis, which may be classified separately, since therapeutically I have found that the prognosis is very poor.

The modern tendency with injection treatment is toward measures aimed at desensitization rather than toward specific immunization, as was the fashion a few years ago. Success may therefore be found at both ends of the therapeutic scale; either by massive doses of protein or T. A. B., or else by minute doses of polyvalent vaccines, as advocated by Crowe. The former method however is apt to produce unpleasant results in frail patients which may overshadow its value for the fibrositis, while the latter method, owing to the considerable period over which it has to be administered, is always liable to the criticism that the disease might in this interval have alleviated itself by natural means anyhow.

When the pain can be localized to one or two definite spots or nodules, the injection of a small quantity of a local anesthetic, or even simple needling, will often result in relief.

It is pointed out by most writers on the subject of fibrositis that any method of treatment which will produce copious sweating is likely to produce improvement in this disease. This is explained by them as being due to a restoration of the normal functioning of the skin. I have often wondered however whether the benefit produced is not due more directly to the elimination of sodium chloride by this route. A salt free diet is of considerable benefit in this condition, more, however, perhaps from a prophylactic point of view than as a curative measure once an attack has started. These patients should in addition increase their fluid intake to a minimum of five pints a day. In cases believed to have a metabolic basis, sensitivity to particular foodstuffs must be carefully inquired into. In Germany the skin protein tests are sometimes performed for this purpose, as in cases of asthma or hay fever. Alcohol is generally prohibited in fibrositis, but when this is harmful the patient is, in my experience, generally aware of the fact and has, if intelligent, already "gone dry."

In acute cases, as in gout, it is important that the bowels shall act briskly. Calomel followed by salts, which may well be taken each morning until the patient is cured, is probably best. Colonic lavage will be found in certain cases to be of great value in the later stages but should never be permitted too frequently.

Medicinally the chief indication is for drugs of the analgesic groups. These may be of the types which act locally at the site of the pain, such as acetylsalicylic acid and the salicylates, or those which act centrally through the higher centers such as aminopyrine or the barbiturates. The thiosinamine group are also of value by injection and act by producing a state rather similar to mild protein shock. Of the value of histamine given by injection it is too early to speak with certainty, but it seems as though this substance is of definite value when the lesion is in the muscle substance rather than in an area chiefly composed of avascular fibrous tissue. On general principles the alkalis seem to be of value in fibrositis. The salts of gold which we have in England been using fairly extensively in the rheumatic group are useless in fibrositis and may be harmful. The use

of iodine in some form is traditional, although its employment is empirical.

Of physical methods heat and massage are the two chief indications. Heat should be prolonged and penetrating. Infra-red rays are probably better than radiant heat and in certain cases, as when the muscles of the back are affected, diathermy is best of all. If the effects of dry heat of this sort are disappointing, it is generally worth trying the effect of moist heat in the form of hot soda baths, mud packs or mustard poultices, while the contrast douche (alternate hot and cold water from jets) when it is available is both stimulating and analgesic. Heat should be given without massage during the stage of effusion, and massage added when this acute phase is over. Rubefacient ointments should be rubbed in by the patient at home, while in some cases actual blistering as counterirritation will give results with local pains.

Massage when used in the treatment of fibrositis must be deep and will therefore be painful. It is essential however that the fibrous nodules should be thoroughly broken up, as they can be, by the trained fingers of the masseur. If the patient is unable to relax his muscles sufficiently for this purpose on account of the pain, an analgesic should be administered previous to this treatment and the period of preliminary heat prolonged. When in spite of these measures the muscles tend to go into spasm, histamine ionization may be given for a few applications. Massage must however be resumed later, even if the pain has been banished, since unless the nodules are destroyed relapse is ultimately almost certain.

After an acute attack of fibrositis the muscles, if carefully examined, will frequently be found to be somewhat wasted, presumably from disuse, and if this is neglected a condition of mild fibrosis will become established and the affected area will become permanently a "weak spot." Active postural exercises or sports should therefore be advocated during the period of convalescence or, when the patient is elderly or sedentary, a course of faradic stimulation of the affected muscle groups.

An attack of fibrositis must not be considered by the physician as being of little importance once the pain is gone. Apart from the undesirability of allowing the patient to drift needlessly into a chronic or semichronic condition his general resistance is considerably lowered; fibrositis takes it out of a patient quite unduly, and a proper period of convalescence, with possibly a course of tonic spa treatment, will in all cases prove a profitable investment and should be advised.

15 Harley Street, W. 1.

A Literary Achievement.—The Life of Sir William Osler, by Harvey Cushing, to my mind is one of the most extraordinary literary achievements of our day. That a book in two volumes and more than thirteen hundred pages can, in this age, hold the attention of the reader from start to finish is one marvel. That a biographer who knew his subject as intimately as Cushing did Osler, who stood in the affectionate relationship that he did to him, can keep himself entirely out of the picture, is another. And that, in a book that is of necessity crammed with medical detail, there can be drawn the likeness of such a radiant personality, the record of such gracious living, is the third. The Life is dedicated to medical students, with the hope that something of Osler's spirit may be conveyed to those of a generation that did not know him, and no one, I think, can read it without feeling how beautifully Cushing has wrought his labor of love and how adequately he has fulfilled his desire.—Miller, C. J.: Some Literary Doctors of Medicine, *Am. J. Obst. & Gynec.* **18**:303 (Sept.) 1929.

Clinical Notes, Suggestions and New Instruments

SEVERE XEROSTOMIA FROM X-RAY TREATMENT FOR HYPERTRICHOSIS

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Because of the fairly common attendant dangers, which are both difficult to foresee and difficult to prevent, dermatologists as well as roentgenologists are quite generally opposed to the uncontrolled and widespread use of x-rays or radium in the therapy of hypertrichosis or excessive hair growth. It often happens, however, that where the physician fears to tread the commercially minded layman, who learns of a medical advance and ignores its dangers, doesn't hesitate.

In various parts of the United States a number of patients with untoward cutaneous complications from the use of the commercialized Tricho (x-ray) System in the treatment of hypertrichosis of the face have been observed. These have served to emphasize the danger of using any x-ray "system" in the treatment of this condition. There has been in use in Philadelphia within the past year or two a new x-ray "system" said to employ specially filtered x-rays and which, in the individual whose case history is to follow, was not accompanied by the superficial complications such as cutaneous atrophy and telangiectases so commonly seen. It was, however, followed by deep effects on the salivary glands of the oral mucous membrane and, naturally, their secretions. Radiologists are well aware of and often see such disturbances following high voltage roentgen therapy for malignant growths within the oral cavity. The advertising matter of this concern (Cosmique Laboratories) makes no mention of the possible dangers of the procedure.

Since these patients may first consult their dentist, it appears of general interest to report this rather unusually marked result of high voltage roentgen therapy for a skin condition with unexpected harmful effects on the secreting epithelium of the oral glands.

REPORT OF CASE

A white woman, aged 52, had been previously studied by one of us in the early part of 1934. She had had pulmonary tuberculosis, which had become inactive following sanatorium treatment. Achylia gastrica had been originally discovered a number of years before and was shown to be still present at the time of the original studies by us. At that time, however, there were no oral symptoms. The blood count was quite normal and nothing else of importance was discovered. When seen again in January 1935 she complained of general oral soreness, especially of the tongue, associated with excessive dryness of the mouth, which had developed during the last week of September 1934 and had progressively become worse. The soreness was aggravated by the use of spicy and hot foods and by smoking. The patient stated that her lips felt puckered and that talking markedly aggravated the dryness, as did keeping the mouth open for a short time. The mouth on examination appeared to be dry and lacking salivary secretion. The mucosa itself was definitely drier than normal. The lingual epithelium had an atrophic appearance. The oral examination itself was annoying to the patient, first because the parts touched by the tongue depressor were sensitive and secondly because she was compelled to open and close her mouth repeatedly in an attempt to increase the oral secretions and thus moisten the mucous membranes, which rapidly dried out.

The causes for xerostomia were reviewed and the patient was questioned as to possible exposure to x-rays. This elicited the information that beginning in June 1934 she had received at the hands of a "cosmetologist" about twenty-four x-ray treatments to both sides of her face for excessive hair growth. The last treatment had been given in December 1934, one being given in each week of September, October and November despite the development of progressive oral dryness.

On our advice the x-ray treatments were discontinued during the next year. There was a slight but progressive improvement during the next year and when the patient was last seen, in January 1936, the symptoms had diminished a great deal but were still present to a moderate degree.

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ANAPHYLAXIS DUE TO SODIUM MORRHUATE

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The injection treatment of varicose veins of the lower extremities has grown in popularity so rapidly during the past five years, and the solutions in use have become so standardized, that attention should be called to a possible danger in the use of sodium morrhuate solutions. Mention has been made in the literature to localized manifestations of allergic reactions to sodium morrhuate, these mainly consisting of urticarial rashes appearing at the site of injection. Of these I have seen a goodly number. Little comment, however, is made about any constitutional reactions. Having had a severe anaphylaxis occur in one of my cases, and noting a similar experience in three other instances among my colleagues, I feel that a real danger exists and that the condition possibly has occurred with greater frequency than might be considered likely. All these cases of anaphylaxis occurred in individuals who had received injections of sodium morrhuate at a preceding interval of a year or more. It would thus seem as though there were some protein liver radical in the sodium morrhuate solutions to which certain individuals become sensitized and in whom later injections with the same solution caused foreign protein allergic reactions. Most of such reactions fortunately consist of local urticarias, but the experience of seeing a severe constitutional anaphylaxis makes one wonder whether the repeated use of this solution in the same patient is altogether safe. The following case is therefore reported:

REPORT OF CASE

Mrs. N. D., aged 35, seen Dec. 14, 1935, gave a history of having had extensive varicosities of both thighs and both legs for a number of years, all of which had been successfully thrombosed by the injection treatment in 1932. The solutions used at this time were 5 per cent sodium morrhuate and quinine and urethane, with a few injections of 20 per cent sodium chloride. There were no reactions at this time, either local or general. In 1934 the patient went through a normal pregnancy, following which a moderate number of varicose veins in the legs and thighs recurred. When I first saw her in December 1935, examination revealed the internal saphenous group of veins in each thigh varicosed and she was advised to have them reinjected. At the first visit only one injection was given, consisting of 1 cc. of 5 per cent sodium morrhuate. No reaction was noted. The patient was seen one week later, at which time she mentioned that she had some itching at the site of the injection during the preceding week but otherwise felt well. At the second visit, 1.5 cc. of 5 per cent sodium morrhuate was injected in a varicosity in one thigh and 2 cc. of the same solution in the opposite thigh, a total of 3.5 cc. The injections had just been completed when the patient suddenly complained of feeling ill and very warm. She rapidly went into collapse. The pulse rose to 150 and within a few moments was imperceptible. There was marked dyspnea, pallor of the face and cyanosis of the fingers. The respirations became rapid and shallow. A generalized urticarial rash was then noted and this was quickly followed by spasmodic, severe cramplike pains in the lower part of the abdomen, which could best be compared to labor pains. These were accompanied by severe retching. The blood pressure dropped to 70 systolic, 0 diastolic. The heart sounds were rapid and weak but of fair quality.

Epinephrine 1:1,000 in 10 minim (0.6 cc.) doses was given subcutaneously every ten minutes until a total of 3 cc. had been given and 1 grain (0.065 Gm.) of morphine sulfate in one-third grain (0.02 Gm.) doses every fifteen minutes was given hypodermically. The pulse remained imperceptible for about one hour and then gradually returned to normal over a period of two hours. The whole attack lasted about three hours, the severity of the symptoms remaining about the same for the first hour and slowly subsiding during the remaining time. The patient was allowed to return home five hours after the onset of the attack, but nausea, weakness and recurrent waves of urticaria were present for the ensuing week.

The dramatic suddenness with which this attack occurred, its severity and the real danger of possible death were most impressive, particularly as it occurred during a form of therapy which is so generally believed to be unaccompanied by danger. Inquiry has revealed three similar experiences in different patients, fortunately none of them having a fatal outcome.

It would thus seem as though sodium morrhuate solutions should be used with the greatest care in patients who have previously received the same solution, if a sufficient time has elapsed to allow the development of a foreign protein sensitiveness. One should be doubly careful with individuals who are subject to asthma, hay fever or any other allergic phenomena.

59 East Fifty-Fourth Street.

Special Article

THE PHARMACOPEIA AND THE PHYSICIAN

THE USE OF CATHARTICS

OSCAR W. BETHEA, M.D.
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NEW ORLEANS

This is one of a series of articles written by eminent clinicians for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

Over a long period in the history of medicine there was an enthusiasm for depletion which is difficult for physicians at present to understand. This included bleeding by venesection, scarification and cupping, leeching, emesis, diaphoresis, diuresis and purging. These were employed with what seems to us today "a gay and reckless abandon." The present tendency is to confine the use of such measures to cases presenting definite indications and our conception of these is rapidly becoming more critical. More or less indiscriminate purgation is the last of the aforementioned measures to be materially restricted. In a recent survey of two of the largest hospitals in New Orleans, I [1] found that of all patients admitted to the medical services about 33 per cent received a large dose of some cathartic within the first twenty-four hours; 11 per cent were so favored in the second twenty-four hours. There is some evidence of a decreasing tendency to prescribe cathartics.[2]

The persistent tendency by the public to the use of purgatives is largely the result of the influence of commercial advertising. The exploitation of the public in this particular is a disgrace to our modern civilization. In this campaign the welfare of suffering humanity is given secondary consideration, if any at all.

Before deciding to administer an active cathartic to a patient, one should certainly carefully weigh the indications and contraindications. When one considers the limited possible value of emptying the intestinal tract of its normal contents and the probable disadvantages, such as dehydration, exhaustion, discomfort, loss of nutrition, disturbance of sleep and even possible danger, one should at least consider all available data. Some of the possible disadvantages are well illustrated in the recent statistics [3] from the Charity Hospital at New

1. Bethea, O. W.: The Use and Abuse of Purgatives, Internat. M. Digest **24**: 239 (March) 1934.
2. Gathercoal, W. N.: The Prescription Ingredient Survey, American Pharmaceutical Association, 1933.
3. Maes, Urban: Personal communication to the author.

Orleans covering acute appendicitis. It was shown that, of those patients receiving no purgative before operation, one in every ninety-six died; of those who had taken a purgative before operation, one in every eleven died; of those who had been the victim of repeated purgation, one in every four died.

Cathartics have been divided into various groups, such as laxatives, hydrogogues and drastics. One of the most convenient groupings for study is the following:[4]

1. Drugs, such as liquid petrolatum, that act only mechanically by reason of their bulk or consistency.
2. Drugs, such as agar, that act by absorbing and holding water, and thereby preventing its absorption from the bowel.
3. Saline cathartics, such as magnesium sulfate, that act partly by preventing absorption of water and partly by a direct action on the bowel wall.
4. Drugs, such as cascara sagrada, containing a quinone group. These act mainly on the colon.
5. Drugs, such as podophyllum, containing a resinous body, which is slowly broken down, releasing an irritant principle.
6. Drugs, such as castor oil, containing unsaturated fats.
7. Inorganic drugs, such as mercury and sulfur.

I shall divide these agents into two general groups based on their therapeutic use:

1. Those employed for an acute condition; that is, to meet the present need of the patient.
2. Those employed for longer periods (as in chronic constipation or edema).

I am not considering here such measures for emptying the alimentary tract as enemas and suppositories.

In selecting a purgative agent for the immediate need of the patient, it is desirable to choose one that will produce the desired result with the least possible discomfort or danger and will have the minimum of undesirable side effects (such as continued purgation). It should also be an agent that may be taken with convenience and retained with certainty. The drugs in this group are so often in the family medicine cabinet that it is seldom necessary to write a prescription. In most instances it is also best to inquire into the history of the patient as to his experience in the past. A drug that may be very palatable to one may be exceedingly objectionable to another. Again, a dose of a certain amount may be satisfactory to one individual and not to another. In other words, when it comes to purgation every patient is a law unto himself.

Magnesium Sulfate, U. S. P., is probably the most widely used purgative. It is efficient in action, rarely causes discomfort, has few undesirable side-effects, and the principal disadvantage is an unpleasant taste, which may be eliminated to a large extent by dissolving the salt in some palatable fruit juice. Its mode of action is characteristically that of the salines. I seldom find it necessary to give more than one-half ounce (15 Gm.) at a dose. Why the standard ward dosage in many institutions should be 1 or 1½ ounces (30 to 45 Gm.) I have never been able to understand.

Solution of Magnesium Citrate, U. S. P., a flavored, carbonated saline, is often recommended by physicians. It is seldom that a prescription is written for it, as it is so well known to every one. It is much more expensive per dose than most of the other purgative agents and this has probably militated against its general use. It is exceedingly nauseating to many persons and not infrequently causes violent and continued purgation.

Magnesia Magma, U. S. P., commonly known as milk of magnesia, is palatable to most persons and is especially easy to administer to most children. Its alkalinity makes it particularly desirable in hyperacidity, and it neutralizes hydrochloric acid in the stomach without the liberation of carbon dioxide. It may be administered plain or stirred in cold water. Its continued use may cause discomfort in the rectal region, characterized particularly by a sensation of burning.

Seidlitz Powders, U. S. P., also known as compound effervescing powders, form one of the most palatable mild laxatives available. The taste is not objectionable to most persons and, when added to water for administering, it forms an alkaline, effervescing, carbonated beverage that rarely causes nausea and is usually satisfactory in results.

The sodium phosphates comprise several preparations, all of which are inexpensive and fairly satisfactory in their effect.

Sodium Phosphate, U. S. P., is not often prescribed as such. It is extensively used in some of the proprietaries, which are usually concentrated solutions made by adding citric acid. Effervescent Sodium Phosphate (U. S. P.) is a granular powder which, when added to water, forms a fairly pleasant carbonated drink. It is put up in 2 to 4 ounce bottles and is employed particularly as an early morning laxative in chronic constipation.

Sodium Biphosphate, U. S. P., frequently called sodium acid phosphate, is an excellent laxative and is frequently used to acidify the urine. For the latter purpose its usefulness is somewhat limited by its laxative quality.

Magnesium Oxide, U. S. P., is seldom employed as a purgative agent but is extensively prescribed to neutralize gastric acidity. Hence its laxative quality must be given consideration.

Magnesium Carbonate, U. S. P., is not often prescribed as such. I remember that in my earlier years this agent pressed into blocks was a very common domestic article. It was used as a face powder by the ladies of the household, as a dusting powder for the children, and small amounts were nibbled off the block for acid stomach while larger bites were taken when its laxative effect was desired. An agent with so wide a field of usefulness hardly deserved to fall into disuse.

Castor Oil, U. S. P., would probably come next to magnesium sulfate in popular usage, at least if bulk is considered. The old, crude oil that we remember from our earlier years often had a disagreeable odor and always a disgusting taste. The highly refined oil that may now be purchased is odorless and practically tasteless. The principal disadvantage in its use is the psychic inhibition that we have carried over from the days of outraged youth. When we remember the limitations of the sense of taste, we realize that most of the unpleasantness of this drug, against which childhood has rebelled throughout the generations, is really due to smell, and the old practice of holding the nose when taking the dose was not without value. Many plans have been suggested for making castor oil less disagreeable. The so-called tasteless preparations that are made by sweetening the oil with saccharin and flavoring it with some volatile oil are sometimes more atrocious than the oil itself, even in its crudest state, could ever hope to be. It may be administered in lemon juice, pineapple juice, ginger ale or in various other ways. Some prefer to take it warm. One of the most palatable ways of administering castor oil, and one that is particularly effective when there is acute indigestion or nausea from any cause, is to put the dose of oil

4. Solis-Cohen, Solomon, and Githens, T. S.: Pharmacotherapeutics, Materia Medica, Drug Action, New York, D. Appleton & Co., 1928.

into a glass, add 4 cc. (1 fluidrachm) of paregoric (Camphorated Tincture of Opium U. S. P.), beat it up vigorously with a spoon, and let the patient gulp it at one swallow. This process divides the oil into small globules, each of which is surrounded by a coating of the paregoric. Should the first dose be vomited, it should be repeated immediately; the second dose is practically always retained. Castor oil has the quality of purging and then lessening intestinal activity. Occasionally some medical men speak of this agent being toxic. "It may be given in large quantities without any symptoms except its mild, laxative action." [5] It is principally absorbed from the small intestine, so its action on the colon is indirect.

Calomel (Mild Mercurous Chloride, U. S. P.) one time was the "magnum donum Dei" of the medical profession. It was the beginning and sometimes the end of most therapeutic effort. Today it is rapidly falling into disuse. To a large extent the same may be said of Mass of Mercury, U. S. P., and Mercury with Chalk, U. S. P. These agents are still employed to a considerable extent in the treatment of syphilis in children.

Phenolphthalein, U. S. P., is increasing in favor with the profession, even as a prescription ingredient. It is extensively employed in many proprietary remedies. It is largely without toxic action and, though skin eruptions sometimes occur, it is a fairly safe and reliable laxative and is so easily administered, even to children, that its place in therapy has been easily established.

Naturally many agents that will be considered in the next section under those for continued use may be given for temporary need if a sufficiently large dose is employed.

The use of cathartic drugs is often indicated for extended periods of time, but particularly in the treatment of chronic constipation the value of proper diet, sufficient water, exercise, and the establishment of the habit of intestinal elimination through patient effort must be remembered. Bastedo [6] has quaintly remarked that "the prescribing of purgatives is ofttimes an indication of laziness on the part of the physician."

"With the majority of patients, constipation is due to functional rather than mechanical causes, and these principally affect the large bowel." [7] "Eighty-five per cent of constipation is functional and nearly all of these are due to faulty habit." [8]

In the presence of edema, the use of hydragogue purgatives is guided entirely by the evident requirements of the particular patient. In chronic constipation the object should be to give cathartics only until the condition can be corrected and a proper habit established. In any event a preparation should be selected that is palatable if possible, that will cause a minimum of interference with digestion, that will be free from discomfort, that will not increase the purgative habit, and that will be free from other unfavorable side effects, such as a tendency to cause hemorrhoids.

Olive Oil, U. S. P., is palatable to many persons and not particularly objectionable to the majority. It is nutritious, tends to lessen gastric acidity, favors emptying of the gallbladder, and directly or indirectly stimulates the pancreatic output. As a laxative it is usually best taken in one dose at bedtime, though some find it more satisfactory to take divided amounts two or three times during the day. It occasionally causes abdominal discomfort, though such reaction is the exception. As much as I regret to have such a statement emanate from the South, it cannot be replaced satisfactorily by Cottonseed Oil, U. S. P., as in the process of refining this latter product certain fatty acids are removed on which olive oil depends for part of its effect. I recently visited a ward containing eighteen patients suffering from pulmonary tuberculosis for whom olive oil had been the only laxative employed for many months.

Liquid Petrolatum, U. S. P., has continued to hold a prominent place in the treatment of chronic constipation and some kindred disorders. It is not absorbed, passing through the intestine unchanged. "Its action is that of a mechanical lubricant" [9] and, though it does have some tendency to increase the bulk of the intestinal content, it does not appreciably increase peristalsis but makes more effective the peristalsis that is already operative. It is particularly valuable in such conditions as hemorrhoids, anal fissure and those conditions in which some part of the lumen of the intestinal tract is reduced in caliber.

The Emulsion of Liquid Petrolatum, U. S. P., has been extensively advertised by the various pharmaceutical houses, and many proprietary products are on the market. Some of these claim to have particular value because of the fact that the emulsion is made with agar. This is misleading because the amount of agar present is insufficient to have any therapeutic effect, and there is enough water present in the emulsion to negative any possible benefit from the agar. It would certainly seem probable that all liquid petrolatum preparations would interfere with digestion and assimilation to a certain extent.

Cascara Sagrada, U. S. P., as now put on the market is not only effective but almost free from discomfort. While the extract (U. S. P.) is sometimes employed, the drug is principally ordered, as the fluidextract (U. S. P.) or the aromatic fluidextract (U. S. P.). These are prescribed alone or with milk of magnesia as previously mentioned, or small amounts are added to various formulas to make them laxative. It should be remembered that only the aromatic fluidextract is miscible with aqueous solutions. In ordering pills or tablets or in instructing patients to purchase and use them, physicians should be careful to avoid the various pharmaceutical combinations that contain drastic cathartics.

Sodium Sulfate, U. S. P., is again coming into popularity. Faust prefers it to all other agents as a purgative to be used after an anthelmintic. One of the most pleasant plans of administering it for continued use is to prescribe it with an equal amount of Potassium Bitartrate, U. S. P., and have the patient take one or two teaspoonfuls of this mixture with fruit juice on first awakening in the morning.

Agar, U. S. P., is seldom a prescription ingredient but often is employed to give bulk to the intestinal content.

Senna, U. S. P., is a popular domestic remedy. It is sometimes employed by chewing the leaves, but more frequently by making them into a tea. The excellent quality of this agent is largely overlooked by the medical profession. Compound Powder of Senna, U. S. P., is sometimes prescribed.

5. Gunn, J. A.: A Text-Book of Pharmacology and Therapeutics (Cushny), Philadelphia, Lea & Febiger, 1934.
6. Bastedo, W. A.: Materia Medica, Pharmacology, Therapeutics and Prescription Writing, Philadelphia, W. B. Saunders Company, 1932.
7. Friedenwald, Julius, and Morrison, Samuel: Constipation, Cyclopedia of Medicine, volume IV, Philadelphia, F. A. Davis Company, 1935.
8. Morgan, W. G.: Constipation, in Practice of Medicine (Tice), Hagerstown, Md., W. F. Prior Company.
9. Sollmann, Torald: A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1932.

Rhubarb and its preparations (U. S. P.) and sulfur in its various forms (U. S. P.) are still used, though with decreasing frequency.

The old "drastics" familiar to the past generations of medicos have largely and deservedly fallen into disuse. They are not necessary in modern medicine and their use was certainly fraught with an element of danger. The least objectionable of these, Aloin, U.S.P., and Podophyllin, U. S. P., are still prescribed for certain definite indications.

SUMMARY

Cathartics should not be used without definite indications.

In the selection of a purgative agent, due attention should be given to the indications and contraindications presented by the particular patient.

The United States Pharmacopeia XI contains a variety of properly standardized cathartic drugs that will meet the therapeutic requirements in most if not all instances.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

HOWARD A. CARTER, Secretary.

FISCHER MODEL "SWI-12" SHORT WAVE APPARATUS ACCEPTABLE

Manufacturer: H. G. Fischer & Company, Chicago.

This device is recommended for medical and surgical diathermy. High frequency radiations may be applied by cuff electrodes, electromagnetic coils and pad electrodes for medical diathermy applications, and terminals are provided for surgical electrodes. The wavelength of this unit is 12 meters. Electrodes or applicators furnished with the apparatus consist of pads, cuffs, and insulated cables. The circuit is the well known push-pull type, having two oscillator and two rectifier tubes. The patient's circuit is inductively coupled to the tank circuit. The variable condenser is used to tune the patient's circuit to electrical resonance. When this machine is operated under full load, it draws not more than 700 watts. Since no reliable method has been proposed to measure the output of energy available to the patient, the value is not given. (Figure 2 is the diagram of the circuit.)

Fig. 1.—Fischer SWI-12 short wave machine.

The manufacturer submitted evidence substantiating the heating ability of the unit. For the electric field method cuff electrodes were applied to the thigh, one posterior to the hip and one anterior to the knee. The cuff electrodes used in the investigation were made of metal, surrounded by thick protecting rubber. Several layers of toweling or felt, or both materials, were placed next to the skin to absorb perspiration and also to permit suitable spacing of electrodes. In the case of the electromagnetic field method a heavy, insulated coil was wrapped around the thigh and separated from the skin by one-half inch of toweling and felt.

The human subjects were all vigorous, adult, male medical students, ranging in weight from 150 to 180 pounds (68 to 81.6 Kg.). Two trocars placed in hard rubber cannulas were inserted into the thigh. One was introduced at right angles to the thigh and straight down into the depth of the muscle tissue until the instrument was at an approximate depth of 2 inches or until the femur was encountered. The second was introduced as nearly parallel to the skin as possible and subcutaneously at an approximate depth of one-eighth inch. The trocars were removed, leaving the rubber cannula in situ. Temperature measurements were taken by means of thermocouples of the hypodermic needle type and introduced through the cannulas. The third thermocouple, placed on the skin surface underneath the cuffs, was used to measure skin surface temperature. Cold junctions were immersed in ice enclosed in a quart vacuum bottle. The readings were observed on a Leeds & Northrop portable potentiometer. The thermocouples were calibrated in degrees Fahrenheit against a Bureau of Standards thermometer. Initial temperatures were taken and then each subject was submitted to a twenty-minute application of short wave diathermy energy of maximum current strength at his tolerance. At the end of this period the temperatures

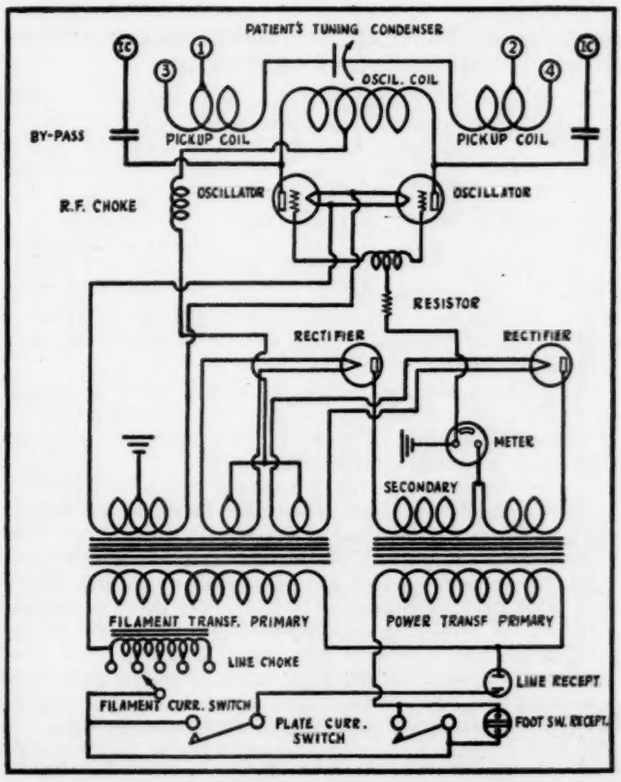

Fig. 2.—Schematic diagram of circuit.

were again recorded. Temperatures were observed at intervals of one minute until the temperature began to drop. The highest temperature attained was recorded as the final temperature in each instance. Then the thigh was permitted to cool until the temperature dropped to or near the initial temperature and the observation was repeated. Each reading in the table is the average of six observations.

Temperature Readings

Technic	Wave-length	Muscle Temperature		Subcutaneous Temperature		Skin Surface Temperature		Oral Temperature	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final
Cuff.....	12	99.50	106.22	96.64	103.76	96.62	98.72	98.4	99.26
Coil.....	12	99.73	106.60	97.33	105.83	94.55	99.37	98.67	99.60

Data on the temperature rise when pad or air gap electrodes were employed were not submitted. The temperature rise of the transformer, after the machine had been operated at full load for two hours, came within the limits of safety prescribed by the Council. The shipping weight of the apparatus is about 155 pounds. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is much less than with conventional diathermy.

The machine was installed in a clinic acceptable to the Council and operated under actual clinical conditions. It was

reported as giving satisfactory service. In view of the favorable report based on the performance of this unit when cuff electrodes or coil technic was used, the Council on Physical Therapy voted to include the Fischer Model "SWI-12" Short Wave Apparatus in its list of accepted devices.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT.

PAUL NICHOLAS LEECH, Secretary.

THE USE OF TRICHLOROETHYLENE FOR GENERAL ANESTHESIA

The chemical trichloroethylene was first described in 1864. In 1915 Plessner [1] found symptoms of poisoning in those working with the preparation commercially and noted the special affinity of this agent for the sensory fibers of the trigeminal nerve. Oppenheim [2] suggested its use by inhalation in the treatment of trigeminal neuralgia, and for that purpose it is accepted for inclusion in New and Nonofficial Remedies. Recently, however, trichloroethylene has been used as a general anesthetic. The product used for this purpose differed from that used in the treatment of trigeminal neuralgia. It contained no added diluent or stabilizing agent and the boiling points were more closely defined.

The evidence for the usefulness of this agent in general anesthesia consists of one experimental [3] and one clinical report,[4] both by the same group of workers. Jackson and his associates claim these advantages for trichloroethylene (for anesthesia): it is safe where there is any fire hazard (cautery), because it is noninflammable and nonexplosive; the fumes do not spread; and it is more pleasant than ether. It acts like ethylene (and in stronger concentrations, like ether) in animals. Jackson [3] devised a special apparatus for its administration and used it experimentally and clinically. It is claimed that the machine produces the vapors of trichloroethylene continuously in any strength desired.

The clinical report [4] of 300 anesthesias and analgesias included twenty-five dental cases, twenty-five cases of removal of venereal warts and 198 cervical cauterizations. The authors state:

> "As yet we have not used trichlorethylene in laparotomies or other major surgical procedures (except in experimental animals)."

Trichloroethylene is administered by starting with a very dilute vapor (mixture) of trichloroethylene in air and slowly increasing the concentration until the gage on a special (proprietary) apparatus records half trichloroethylene and half air (there does not seem to be information available on the actual concentration which produces satisfactory anesthesia). It is stated not to be volatile and that "a small amount goes a long way." [3] Its chief danger lies in its rapid effect. This applies especially to the first stage. In one case this rapidity resulted in a respiratory failure (recovery by artificial respiration), which was attributed to a "slight overdose." [3]

According to reports [4] there is flushing of the face, mild lacrimation, and slight increase in the pulse rate in the first stage. In the second stage there is mild excitement, twitching of the hands and face, lateral and rotary nystagmus, and an increase in pulse rate of from 10 to 20. Severe excitement was attributed to improper administration. Eight of the 300 patients became so mildly excited that the third stage could not be induced. Three of these patients are said to have been alcoholic addicts and the other five very emotional girls.[4] Complete relaxation occurs in the third stage. The pulse is full and strong and respirations are more rapid and shallower. It is stated that there may be slight [?] cyanosis. In clinical cases recovery generally occurred in about five minutes.[4]

Jackson [3] noted that the formula suggested chloroform and considered the possibility of comparable liver effects. Herzberg [5] compared the observations in three dogs killed with prolonged trichloroethylene anesthesias and two dogs killed by electrocution. He concluded that the changes in the anesthetized dogs were not specifically due to the anesthetic agent because the control (electrocuted) dogs showed similar (principally liver) changes.[5] This evidence seems inadequate and the conclusion unwarranted. Apparently basing his opinion on this work, Jackson [3] notes that, as far as liver effect is concerned, ether resembles chloroform more than trichloroethylene does.

The reports of trigeminal effects of this agent were noted, but it is suggested by the authors that they are in error. Jackson states:

> "In the light of the work we are here reporting, it is fairly apparent that the symptoms produced by the inhalation of trichlorethylene [in facial neuralgia] vapors were varying degrees of general anesthesia and that pathological conditions observed were due either to contamination in the trichlorethylene or more likely to altogether different causes."

This statement seems unwarranted after considering the older literature on the use of this agent. The trigeminal effect has generally been noted to persist after all other effects have passed. It should be determined just what does become of this trigeminal sensory paralysis after such anesthesia. To attribute pathologic conditions to contaminations seems especially d[illegible]s in view of the possible phosgene production (by decomposition), which is not mentioned by the authors.

The Council held that the available evidence does not justify the acceptance of trichloroethylene for use as a general anesthetic and postponed consideration to await (*a*) solution of the question of potential toxicity of decomposition products of the drug and (*b*) development of the evidence to substantiate the claims for its clinical use as a general anesthetic.

1. Plessner: Berl. Gesellsch. f. Psychiat. u. Neurol., Nov. 8, 1915; cf. Neurol. Zentralbl. **34:** 916, 1915; Monatschr. f. Psychiat. u. Neurol. **39:** 129, 1916; Berl. Gesellsch. f. Psychiat. u. Neurol., Feb. 14, 1916; Monatschr. f. Psychiat. u. Neurol. **44:** 374, 1918; quoted by Oljenick, Ignaz: Trichlorethylene Treatment of Trigeminal Neuralgia, J. A. M. A. **91:** 1085 (Oct. 13) 1928.

2. Oppenheim: Neurol. Zentralbl. **34:** 918, 1915, quoted by Oljenick.

3. Jackson, D. E.: A Study of Analgesia and Anesthesia, with Special Reference to Such Subjects as Trichlorethylene and Vinethene Together with Apparatus for Their Administration, Anesth. & Analg. **13:** 198 (Sept.-Oct.) 1934.

4. Stricker, Cecil; Goldblatt, Samuel; Warm, I. S., and Jackson, D. E.: Clinical Experiences with the Use of Trichlorethylene on the Production of Over 300 Analgesias and Anesthesias, Anesth. & Analg. **14:** 68 (March-April) 1935.

5. Herzberg, Mortimer: The Histology of Tissue Taken from Animals Killed by Prolonged Administration of Concentrated Vapor of Trichlorethylene, Anesth. & Analg. **13:** 203 (Sept.-Oct.) 1934.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

CAFFEINE WITH SODIUM BENZOATE.—"A mixture of caffeine and sodium benzoate, containing, when dried to constant weight at 80 C., not less than 47 per cent and not more than 50 per cent of anhydrous caffeine ($C_8H_{10}O_2N_4$): and not less than 50 per cent and not more than 43 per cent of sodium benzoate ($NaC_7H_5O_2$)." U. S. P.

For standards see the U. S. Pharmacopeia under Caffeina cum Sodii Benzoate.

Ampuls Solution Caffeine Sodio-Benzoate, 2 cc.: Each 2 cc. contains 0.48 Gm. (7½ grains) 24.33 per cent solution marketed in packages of ten 2 cc. size ampules.

Prepared by the U. S. Standard Products Co., Woodworth, Wis.

I. V. C. HALIBUT LIVER OIL WITH VITAMIN D CONCENTRATE IN NEUTRAL OIL.—Halibut liver oil to which has been added a concentrate of liver oils of Gadus morrhua, Ophiodon elongatus and Anoplopoma fimbria. It is assayed to have a potency of not less than 59,000 units (U. S. P.) of vitamin A per gram and not less than 1,000 units (U. S. P.) of vitamin D per gram.

Manufactured by the International Vitamin Corporation, New York. The vitamin D concentrate used is made under U. S. patent 1,690,091. U. S. trademark 314,818.

Capsules I. V. C. Halibut Liver Oil with Vitamin D Concentrate in Neutral Oil, 3 minims.—The content of each capsule is assayed to contain not less than 10,000 units (U. S. P.) of vitamin A and not less than 945 units (U. S. P.) of vitamin D.

HALIBUT LIVER OIL (See New and Nonofficial Remedies, 1936, p. 459).

The following dosage form has been accepted:

Capsules I. V. C. Halibut Liver Oil, Plain, 3 minims.—The content of each capsule is assayed to contain not less than 10,000 units (U. S. P.) of vitamin A and not less than 170 units (U. S. P.) of vitamin D.

Manufactured by the International Vitamin Corporation, New York. No U. S. patent. U. S. trademark 314,818.

SCARLET FEVER STREPTOCOCCUS TOXIN (See New and Nonofficial Remedies, 1936, p. 388).

The National Drug Co., Philadelphia.

Scarlet Fever Streptococcus Toxin for Immunization-"National" (See New and Nonofficial Remedies, 1936, p. 388).—Also marketed in packages of six 10 cc. vials of toxin, one containing 500 skin test doses, one containing 2,000 skin test doses, one containing 8,000 skin test doses, one containing 25,000 skin test doses, and two containing 80,000 skin test doses.

BUTESIN PICRATE (See New and Nonofficial Remedies, 1936, p. 71).

The following additional dosage form has been accepted:

Butesin Picrate Ointment with Metaphen: Butesin picrate 1 per cent, and metaphen 1:5,000, incorporated in an ointment base composed of white wax, paraffin, petrolatum, sodium borate and water, 99 per cent.

ANTIPNEUMOCOCCUS SERUM TYPES I AND II COMBINED (See New and Nonofficial Remedies, 1936, p. 374).

E. R. Squibb & Sons, New York.

Concentrated Anti-Pneumococcic Serum, Types I and II (See New and Nonofficial Remedies, 1936, p. 375). Also marketed in packages of one syringe containing 20,000 units each of types I and II pneumococci.

Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING GENERAL DECISIONS. FRANKLIN C. BING, Secretary.

FRESH COMPRESSED YEAST, DRIED YEAST, AND YEAST EXTRACTS ARE SPECIAL PURPOSE FOODS

Compressed fresh yeast, dried yeast and yeast extracts ordinarily are not classed among the usual table foods but are looked on as foods with usefulness restricted to special purposes. These products are useful for increasing the vitamin B_1 and G content of the diet. Fresh yeast and dried yeast if taken in sufficient quantity have a mild laxative effect on many persons. Compressed fresh yeast, dried yeast and yeast extracts therefore come within that class of foods designated as "special purpose foods" in the Rules and Regulations of the Council on Foods.

To be eligible for acceptance, the labels and advertising for these yeast products shall prominently display the designation "special purpose food," list the ingredients other than yeast substances, state the percentages in close proximity to product name, and give the vitamin B_1 and G unitages determined by biologic assay. Special claims for yeast products must have Council approval before use in advertising.

AMENDMENT OF COUNCIL DECISION "VITAMIN E CLAIMS FOR PUBLIC ADVERTISING"

There are at present no adequate scientific data establishing the rôle of vitamin E in human dietetics. This vitamin is present in many common foods, the necessary amount, so far as is known, being acquired with any ordinary diet. Statements or claims referring to vitamin E in advertising to the public imply a need for special sources of the vitamin that is not warranted by present knowledge. Neither claims for vitamin E nor mention of the vitamin shall appear on food labels or in advertising addressed to the public; nor will such claims be recognized if they appear in advertising addressed to the profession if directly or inferentially such advertising recommends the use of the preparation because of its vitamin E content.

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. FRANKLIN C. BING, Secretary.

KELLOGG'S ALL BRAN OMITTED FROM THE LIST OF ACCEPTED FOODS

Submitted advertising for Kellogg's All Bran (THE JOURNAL, Feb. 9, 1935, p. 474) has repeatedly been found to be in conflict with the spirit and intent of the General Decisions on Food and Food Advertising of the Council on Foods. While much of the explanatory part of the advertising may be within the bounds of the technical criticisms that the Council has made to the Kellogg Company in the past, the total effect is to impress the reader that Kellogg's All Bran is the answer to substantially all constipation difficulties. The qualification insisted on by the Council ("due to insufficient bulk") is observed, to be sure, but its force is minimized by the general effect of the presentation. Statements such as "So I have been eating it for two or three weeks, and my constipation (due to insufficient bulk) has gone, and I was constipated for 25 years or more" illustrate the type of objectionable advertising copy that has been used. It is not reasonable to suppose that taking a small amount of All Bran for two or three weeks could correct constipation of twenty-five years' duration. Furthermore, such testimonials of a health, medicinal or therapeutic character, or with such implication, are in conflict with the General Decisions of the Council.

The exclamatory parts of the advertising, such as the frequent short phrases and display heads, are too often of the "patent medicine" order.

Disparaging statements such as "'For 34 years, I had to take pills, salts, oils, teas, or other fluids, which did more harm than good'" and "Finds All-Bran better than Pills, Salts and Oils" abound in the copy.

The reference to symptoms that may accompany constipation, together with the implication that Kellogg's All-Bran will correct these conditions, is contrary to the Rules of the Council.

It is the contention of the Council that advertising for accepted food products should not be predicated on personal charm and social preferment, as illustrated in statements such as: "So many women lose their good looks after thirty. They fail to realize the importance of what they eat day after day . . ." with the implication that bran will cure the discomfort, headaches, poor appetite and listlessness of the person who has lost her good looks.

The Council voted, in view of the continued objectionable advertising for products of the Kellogg Company and the claims made, that acceptance of all products of the Kellogg Company be rescinded, and that the products will be reconsidered without prejudice if presented not earlier than one year from date of notification, to determine whether or not the policy of the firm has changed sufficiently to warrant reacceptance of the products at that time.

When the foregoing report was transmitted to the Kellogg Company and to its advertising agency for All-Bran, N. W. Ayer & Son, Inc., the latter replied in part:

"You know we regret not being able to see eye to eye with you on this advertising, particularly with reference to testimonials.

"However, in the published statement, you have expressed the rules of your Association and have been entirely fair in pointing out where our advertising did not observe those rules.

"We are sorry for this disagreement in views. But at least we wish to thank you for the great amount of time and thought you have given to this whole situation."

The Council has recently summarized (THE JOURNAL, Sept. 12, 1936, p. 874) the available evidence regarding the significance of bran in the diet. Bran is a product which is capable of contributing to the nutritive requirements in a number of respects, notably as a source of roughage. There are individuals, however, who cannot tolerate bran. The Council believes advertising which artfully conceals the potential danger of the indiscriminate use of bran is contrary to the best interests of the public.

The Council therefore has reaffirmed its stand and has authorized publication of this report.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

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SATURDAY, OCTOBER 17, 1936

ACCIDENTAL BURNS IN CHILDREN

Accidents among children, according to a report just published by the United States Public Health Service,[1] constitute a significant menace to infant lives. Moreover, accidental burns (conflagration excepted), are the leading cause of death at ages 1, 2 and 3 years, and for the age group under 5 years as a whole. This is due, in part, to the relatively low death rates from other causes after the first year and up to the fifth, which allow the deaths from burns to assume such a leading place. Another fact looms with increasing importance: accidental deaths as a whole bid fair to nullify many of the gains that have been made through preventive medicine. What a strange paradox, unflattering to our civilization—we can save children from diphtheria, only to have them burned to death.

The study by the public health authorities covered the years from 1925 through 1932. Causes of death included are, according to the International List of Causes of Death, "burns (conflagration excepted, of any organ or part), by boiling liquid, boiling water, coal oil, corrosive substance, fall with lighted lamp, fire, gasoline, kerosene, molten metal, petroleum, steam, sulfuric acid and vitriol; dermatitis actinica and ambustionis; effects of corrosives, radium and x-rays; explosion of gasoline, kerosene and lamp; fall into fire; fire (conflagration excepted); lamp accident; playing with fire; scald of any part of the body by steam; and sunburn." The study is divided into four regional groups, covering the forty registration states of 1925 and the District of Columbia: Northeastern,[2] North Central,[3] Southeastern[4] and Western.[5] The data collected for these four regions show that the actual number of deaths from burns in each of the groups decreased from 1925 to 1932, but the percentage distribution of the deaths by age varied little. In each geographic division, the lowest limit of relative mortality due to burns (ratio of fatalities from accidental burns to fatalities from all accidents) was about the same, 3 per cent, and occurred in the age group 10 to 14. The upper limits of relative mortality are as follows: Southeastern, 57 per cent; Northeastern, 43 per cent; North Central, 38 per cent; Western, 33 per cent. The upper limits occur at the age of 2 years in all save the Southeastern, where 3 years is the age of highest relative mortality. In all regions ages 2, 3 and 4 show the most rapid decline, the greatest declines being at age 3 in the Northeastern group (28 per cent) and the Southeastern (25 per cent).

Accidents of all kinds are rapidly increasing in importance. Here is a class of accidents of which the causes are well known, the prevention relatively simple. Further emphasis must be placed on safety in the home, since in all probability, though the study does not so indicate, most of these accidents to children occurred in that sanctuary.

1. Gafafer, W. M.: Time Changes in the Relative Mortality from Accidental Burns Among Children in Different Geographic Regions of the United States, 1925-1932, Pub. Health Rep. **51**: 1308 (Sept. 18) 1936.
2. Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and District of Columbia.
3. Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, West Virginia and Wisconsin.
4. Alabama, Florida, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia.
5. California, Colorado, Idaho, Montana, Oregon, Utah, Washington and Wyoming.

THE BRITISH MEDICAL ASSOCIATION AND THE VOLUNTARY HOSPITALS

Prior to 1920 the Voluntary Hospitals of Great Britain—purely charitable organizations supported by philanthropy for the benefit of the poor—admitted the majority of persons seeking hospital care. All who could not pay for the services of private physicians and who were unwilling to accept or were not entitled to service in the Poor Law Hospitals found the Voluntary Hospitals freely available. The Poor Law Hospitals were next in importance in providing hospital care for the poor. Patients, however, had to be "destitute" before they could be admitted to these institutions, although in a few areas service was given to practically any person belonging to the income classes entitled to participate in the National Health Insurance. Private patients were generally cared for in nursing homes, which formed but a small part of the hospital service for the nation.

In the decade after 1920, two fundamental changes took place in the traditional methods for providing hospital care in Great Britain. The first was the result of social and scientific developments; the second, of legislation. Following the World War, the increased demand for hospitalization, which everywhere is characteristic of modern nations, was overstimulated in England. One of the causes of this increased use of hospital care was the health insurance system, which furnished only a general practitioner service and left all the more serious cases to be cared for by hospital staffs. Much of the increased use of hospitals was due to the scientific advances in medicine, which introduced many new methods of diagnosis and treatment requiring institu-

tional equipment. As a consequence, the Voluntary Hospitals were overcrowded and their financial resources were exhausted.

The economic conditions following the World War had caused the wealthy and middle classes to decrease or suspend their gifts to Voluntary Hospitals, which were then forced to seek contributions from the industrial and low wage groups. To meet the financial crisis, two types of hospital plans were developed—contributory or "poor men's" schemes, and provident or "middle class" schemes. A committee appointed to investigate the plight of the Voluntary Hospitals considered the inclusion of hospital service under the National Health Insurance but advised the extension of the contributory and provident schemes to provide the funds necessary to maintain the Voluntary Hospitals.

In the meantinme Poor Law Hospitals with government assistance were developing a bed capacity twice that of the Voluntary Hospitals. Antagonism on the part of the poor toward Poor Law Hospitals was lessened because of improvement in facilities and the introduction of some free choice of physician. In 1929 the Local Government Act transferred these institutions to county and borough councils and by removing the "destitution" test threw them open to general service for the community. In fact, the regulations were such that these hospitals were opened to practically all the inhabitants of the administrative area in which they are located with the only stipulation that the patient be charged the cost of maintenance, subject to his capacity to pay.

The important effect of the appropriation of the Poor Law Hospital by the county or borough council was that the hospital became an integral part of the public health service under the supervision of the medical officer of health. As of April 1935, 42,082 general hospital beds had been appropriated by the local councils. In addition, a number of appropriations were made of children's hospitals, municipal institutions, tuberculosis hospitals and others.

The change in the nature of the Poor Law Hospitals and the placing of power, responsibility and financial means in the hands of the local authorities will have an important effect on the future status of hospitals in England. The changed relations with the public are forcing changes in the attitude of the medical profession toward the hospitals. The Voluntary Hospitals were the training ground of the medical profession. In return for staff appointments, physicians rendered medical services without charge. Since the majority of the patients in Voluntary Hospitals are now paying, the British Medical Association recommends the introduction of pay beds and set forth the following policy:[1]

> Although the medical profession will gladly give, as always, its services gratuitiously to those who cannot afford to pay for them, it is inequitable to require it to give its services without remuneration in voluntary hospitals which treat persons able to pay, and which in practice collect payments from a large number of their patients. The field of private practice has inevitably contracted, with the result that consultants, and in particular the younger consultants, are finding it increasingly difficult to secure and maintain a standard of living which represents a reasonable reward for their services and which enables them to maintain the highest possible standard of professional efficiency. In the view of the B. M. A. there should be remuneration of the medical staff in respect to all medical services in hospitals for which payment is made, directly or indirectly—by contributory schemes, local authority, employer or patient.

The British Medical Association has steadfastly maintained that the community will be served best if the hospital devotes itself exclusively to consultant and specialist service. Furthermore the association, in condemning the break in the relations between the general practitioner and the patient when the patient enters the hospital, urges the establishment of a new type of hospital called the "home hospital," to be introduced where the treatment is such as can be given by a general practitioner but which for any reason cannot well be given in the home, these "home hospitals" to be staffed by local general practitioners. It also recommends that admission to a general hospital or to the outpatient department be only on the recommendation of a general practitioner.

With regard to the new Council Hospitals, provisions have been made to prevent encroachment on private practice. All medical officers appointed must be full-time officers and cannot engage in private practice. Thus the British Medical Association, believing that the voluntary hospital and the general practitioner form the keystone of all medical service, is striving to assure their continued existence in the interest of the public and the medical profession.

The medical profession and the hospitals in the United States may derive some guidance from the trend in England. What would happen to the general and special practitioners in the private practice of medicine and to private hospitals of the United States if county hospitals here were permitted to accept patients without any regard to their financial responsibility? Such a condition has actually threatened California in recent years. How long would it be before the limited practitioner became merely a salaried employee of lay boards in charge of county hospitals? What would become of the community investment in non-tax-supported or voluntary hospitals when the chiseling campaign of county controlled competition began? Is it worth while to alienate and destroy the sympathetic and charitable interest of the community in voluntary hospitals that obtains today? Who would maintain the quality of medical care and hospital practice if the medical profession, because of salaried positions and political red tape and regulations, became impotent to safeguard and advance the quality of the medical service? Perhaps economic manipulation of the voluntary hospitals is the first long step toward state managed medicine.

1. The British Medical Association and the Voluntary Hospital, Brit. M. J. supplement **1**: 1647 (June 13) 1936.

LOSS OF PROTEIN DURING FASTING

The animal body differs from a mechanical heat engine in that, during the life of the organism, there occurs constantly some oxidation of material with the production of heat whether or not fuel in the form of food is provided. As it is an old observation that the living organism can withstand deprivation of energy-yielding food for a considerable period, it follows that total inanition represents the withdrawal through combustion either of excess materials previously stored in the body or, in the absence of these, of substances entering into the essential structure of the body. The various aspects of the metabolism of fasting have been worked out from experimental studies both on human subjects and on animals. Following the withdrawal of food, the reserve carbohydrate in the form of glycogen is first used up; then the stored fat is called on as a source of vital fuel, with the result that in a starved animal the fat depots have been largely depleted. The nitrogen output representing the protein metabolized promptly falls to moderately low values, where it remains until the terminal rise. Since an appreciable output of nitrogen persists despite the lack of intake of protein, it is reasonable to believe that body protein is being metabolized. The particular source of this protein is significant.

An attempt to apportion to certain organs and tissues their relative and absolute shares in the total loss of protein from the body during fasting has been reported recently by Addis, Poo and Lew.[1] Two large groups of albino rats of similar age, sex and body weight were studied: one group was used immediately as a control and the second was subjected to analysis after a fast of seven days, during which only water was given. The total protein of the entire body and of most of the organs showed a decrease after the fasting period. The muscle, skin and skeleton together account for almost two thirds of the total protein lost from the body. Both the liver alone and the alimentary tract, pancreas and spleen together account for about one sixth of the total protein lost. However, when the proportion of their own protein lost by the various organs and tissues is calculated, the results are striking. In the course of a fast of seven days the liver lost 40 per cent of its protein, the alimentary tract 28 per cent, the kidney, blood and heart each about 20 per cent, the muscle, skin and skeleton together 8 per cent, and the brain 5 per cent. Although the muscle, skin and skeleton together lose only a small proportion of their total protein, these tissues account for the major part of the protein lost during the period of inanition because of their large relative mass in the body. On the other hand the liver, and to a less extent the kidneys, blood and heart, show a surprising decrease in the proportion of their own protein during inanition. The eyeballs, testes and adrenal glands lost no protein.

1. Addis, Thomas; Poo, L. J., and Lew, W.: J. Biol. Chem. **115**, 111, 117 (Aug.) 1936.

A subsequent determination of the loss from the liver after a fast of but two days showed that 20 per cent of the protein of this organ had disappeared. The observations thus indicate that so far as protein is concerned the liver "may be a storage depot for use in time of need." However, the conclusion is expressed that decrease in function and incipient atrophy may account for the observed loss from the heart, kidneys and alimentary tract. In view of the relatively large loss of their protein shown by the liver, heart and kidneys, the teleologic suggestion that the organs most essential for life are spared in great emergencies may well be questioned.

Current Comment

CONSTITUTIONAL FACTORS IN DISEASES OF THE CARDIOVASCULAR-RENAL SYSTEM

In an address before the Medical Section of the American Life Convention last June, Pearl[1] advanced three lines of evidence bearing on the constitutional factor in cardiovascular-renal diseases. A study was made of the pedigrees of three families with reference to the incidence of cardiovascular-renal diseases. Each of these families showed considerably greater frequency of disease of this group than is found in the general population. This fact in itself establishes a presumption that heredity has played a part in determining the incidence of cardiovascular-renal disease in these families. Pearl also cites the differences in anthropometric measurements of cardiac and noncardiac patients, which has been reported elsewhere and previously commented on in these columns.[2] Finally the relation between the general biologic constitution of the individual and the incidence of cardiovascular-renal diseases may be approached in still another way. In an analysis of the pedigrees of 640 patients taken without selection from the author's records, 285 had some form of cardiovascular-renal disease and 362 were completely free of any trace of these diseases. When the two groups were studied with regard to their general health, it was found that 72.9 per cent of the cardiovascular-renal patients had enjoyed good health up to the time of record but that 81.2 per cent of the other group had been similarly healthful. The difference in favor of the latter group is 3.7 times its probable error and therefore is probably significant statistically. The general picture that emerges, he believes, is that a group of patients with some form of cardiovascular-renal disease, when compared with a group of patients without any such disease, exhibit as a group a definitely lower level of vitality not only individually but also with respect to the immediate families. This lower vitality level expresses itself in various ways, such as by definitely poorer family health up to the time of record, by greater mortality in proportion to the number exposed in the kinship class, and by fewer total life years, experienced and expected.

1. Pearl, Raymond: Constitutional Factors in Diseases of the Cardiovascular-Renal System, Proc. 26th Annual Meeting of the Medical Section of the American Life Convention, June 1936, p. 12.
2. Constitution and Heart Disease, editorial, J. A. M. A. **104**: 221 (Jan. 19) 1935.

Association News

RADIO BROADCASTS

The American Medical Association and the National Broadcasting Company present the second series of dramatized health broadcasts under the title Your Health. The first broadcast in the new series was the thirty-second dramatized cooperative broadcast under the title Your Health. The theme for 1936-1937 differs slightly from the topic in the first series, which was "medical emergencies and how they are met." The new series is built around the central idea that "100,000 American physicians in great cities and tiny villages, who are members of the American Medical Association and of county and state medical societies, stand ready, day and night, to serve the American people in sickness and in health."

The program is on the Red network and Pacific network of the National Broadcasting Company.

It should be noted that a station may take the program, or not. If a local N. B. C. station is not broadcasting the program Your Health, it is possible that the management may be induced to broadcast the program if it receives evidences of local interest. The committee on education or other appropriate committee of the local medical society might take this matter up with the station management and tender cooperation in giving the program local publicity.

The topics are announced monthly in advance in *Hygeia*, the Health Magazine, and three weeks in advance in each weekly issue of THE JOURNAL. Topics and speakers for the next three broadcasts are as follows:

October 20. Arthritis. Morris Fishbein, M.D.
October 27. Help for the Hard of Hearing, W. W. Bauer, M.D.
November 3. Community Sanitation. Morris Fishbein, M.D.

The time of the broadcast is Tuesday afternoon at 5 o'clock eastern standard time (4 o'clock central time, 3 o'clock mountain time, 2 o'clock Pacific time).

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Pediatric Meeting.—The Academy of Pediatrics, region IV, will hold its annual meeting at the San Francisco County Medical Society Building, San Francisco, October 22-24. Speakers will include:

Dr. Williams McKim Marriott, Hypoglycemic Syndrome in Childhood.
Dr. John M. Rector, Acute Sepsis in Infancy.
Dr. James F. Rinehart, Vitamin C in Rheumatic Fever.
Drs. Samuel Hurwitz and Sidney N. Zuckerman, Cervical Adenitis Treated with X-Rays.
Karl F. Meyer, Ph.D., Neurotropic Viruses and the Diseases Caused by Them.

Arrangements have also been made for a round table on the prophylaxis of communicable diseases and ward rounds to Stanford, University of California and Children's hospitals. Attendance at the Stanford-University of Southern California football game will conclude the meeting.

DISTRICT OF COLUMBIA

Society News.—The Baltimore City Medical Society will present the program before the Medical Society of the District of Columbia, October 28; speakers will include Drs. John T. King on "Recent Cases of Isthmus Stenosis of the Aorta"; George H. Yeager, "Treatment of Peripheral Vascular Disease by Passive Vascular Exercise," and Harry C. Hull, "Perforative Gastric and Duodenal Ulcers."

University News.—Dr. Richard P. Strong, professor of tropical medicine, Harvard University Medical School, Boston, will deliver the Smith-Reed-Russell lecture at the George Washington University School of Medicine, October 22, on "The Dysenteries." Dr. Walter Schiller of the University of Vienna and Reuben Kahn, D.Sc., Ann Arbor, addressed the students and faculty, October 1, on "Morphology of Ovarian Tumors" and "Immunity in Syphilis" respectively. Rudolph J. Anderson, Ph.D., New Haven, Conn., will conduct a seminar, October 23, on "The Chemistry of the Acid-Fast Bacteria."

Health at Washington.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended October 3, indicate that the highest mortality rate (18.4) appears for Washington and for the group of cities as a whole, 10.2. The mortality rate for Washington for the corresponding period last year was 14.5, and for the group of cities, 10.1. The annual rate for eighty-six cities for the forty weeks of 1936 was 12.2 as against a rate of 11.4 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

FLORIDA

Addition to Board of Health Building.—Construction on a new three story addition to the State Board of Health Building, Jacksonville, was begun September 10. The addition will cost $25,000.

Society News.—Dr. Alvin J. Wood, St. Petersburg, addressed the Pinellas County Medical Society in St. Petersburg, August 21, on "Progress in Medicine."——At a meeting of the Tri-County Medical Association (Highlands, Hardee and DeSoto counties) in Wauchula, recently, Dr. Joseph Halton, Sarasota, discussed x-ray therapy.

GEORGIA

Society News.—At a meeting of the Fulton County Medical Society in Atlanta, October 1, Dr. Madison Hines Roberts presented "A Study of Mastoid Infection in Children." A resolution was unanimously approved at a meeting of the society, September 17, proposing the construction of a new building for the Atlanta Academy of Medicine and Dentistry.

New Medical School Building.—Construction began September 30 on a new building at the University of Georgia School of Medicine, Augusta, to house the departments of physiology and pharmacology and biochemistry. There will be space for an auditorium with a seating capacity of 350. The cost will be between about $75,000, unequipped. The ground floor of the main medical school building has been renovated to house the department of pathology in the north end, while the entire third floor is now occupied by the departments of anatomy and microscopic anatomy.

ILLINOIS

Society News.—Physicians employed by the Illinois State Department of Public Welfare have organized the Physicians' Association "for the betterment of the medical service in the various state institutions." At a general meeting, September 16, Dr. John J. Madden, Kankakee, was chosen president and Dr. Joseph Marcovitch, Jacksonville, secretary.——At a meeting of the Lee County Medical Society, October 5, Dr. Archibald L. Hoyne, Chicago, discussed infantile paralysis.——The Will-Grundy County Medical Society was addressed at Joliet, October 7, by Dr. Abraham R. Hollender, Chicago, who read a paper on "Vasomotor Rhinitis—Evaluation of Therapeutic Procedures with Special Reference to Ionization."——Dr. Harry M. Hedge, Chicago, addressed the Carroll County Medical Society October 13 on "Dermatologic Conditions Seen by the General Practitioner."

Chicago

Sir Joseph Barcroft Gives Lectures.—Sir Joseph Barcroft, professor of physiology, University of Cambridge, England, gave two lectures at the University of Illinois College of Medicine, September 29-30; his subjects were "The Genesis of Respiratory Movements" and "The Effect of the Composition of the Blood on Mental Properties."

The Billings Lecture.—Dr. Henry A. Christian, Hersey professor of the theory and practice of physic, Harvard University Medical School, Boston, will deliver the third Frank Billings Lecture of the Thomas Lewis Gilmer Foundation of the Institute of Medicine of Chicago at a joint meeting with the Chicago Society of Internal Medicine, October 26, at the Palmer House. His subject will be "Edema, Diuretics, Diuresis."

Society News.—The Chicago Roentgen Society was addressed, among others, by Dr. Stuart W. Harrington, Rochester, Minn., on "The Diagnosis and Treatment of Diaphrag-

matic Hernia."——Dr. Louis K. Guggenheim, St. Louis, addressed the Chicago Laryngological and Otological Society October 12 on "The Ontogenetic Approach to the Pathology of Deafness."——The presidential address was delivered before the Chicago Pathological Society October 12 by Dr. Carl W. Apfelbach on "Modern Concepts of Cirrhosis of the Liver."——The Chicago Neurological Society was addressed October 15, among others, by Drs. Isidore Finkelman and Daniel Haffron on "Observations on the Circulating Blood Volume in Schizophrenia, Manic Depressive Psychosis and Epilepsy."——Dr. Max L. Folk, among others, will present a preliminary report on "Paracentesis and Atropine in the Treatment of Optic and Retinal Atrophies" before the Chicago Ophthalmological Society, October 19.——Dr. Samuel W. Becker will discuss "Relation of Allergy to Dermatology" before the Chicago Society of Allergy, October 19.——At a meeting of the Chicago Pediatric Society, October 20, Robert H. Gault, Ph.D., Evanston, will read a paper entitled "Enlarging the Usefulness of the Vibrotactile Senses."

INDIANA

Personal.—Dr. Henry C. Rogers, Rockville, observed his ninety-second birthday August 16.——Dr. Hubert Gros, Delphi, has been named secretary of the Delphi board of health, succeeding the late Dr. William R. Quick.

New Headquarters for Society.—An auditorium seating 500 and a permanent club room in the Antlers Hotel constitute the new home of the Indianapolis Medical Society. Members of the society and their wives and guests were given a tea by the hotel management, October 13, prior to the dinner meeting of the society, which was the first in its new home. At this dedicatory session Dr. Virgil E. Simpson, Louisville, discussed the U. S. Pharmacopeia. Drs. John H. Warvel and Cecil L. Rudesill will read papers on insulin protaminate before the society, October 27; at a joint meeting of the society with the Methodist Hospital Staff Society, October 20, Dr. Goethe Link, among others, will speak on diseases of the parathyroids.

IOWA

Tick Survey in Thirty-Five Counties.—Financed by social security funds, a tick survey was carried on during July and August to determine the prevalence of the common dog tick and other ticks in different parts of the state and the percentage of ticks that harbor the spotted fever virus. The work was sponsored by the state department of health in cooperation with Carl J. Drake, Ph.D., state entomologist, and Ralph R. Parker, Ph.D., U. S. Public Health Service, stationed at the Rocky Mountain spotted fever laboratory, Hamilton, Mont. Thirty-five counties, including those from which one or more cases of the disease have been reported in the last three years, were studied. Among 800 ticks shipped to Montana, 359 were alive on arrival. These ticks, representing thirty-one different localities in Iowa, were identified and tested for evidence of harboring the spotted fever virus or other infection. Twenty-four of the tests with guinea-pigs proved negative. Four of the tests were rendered void because the guinea-pig "died of an intercurrent infection or had some reaction which suggested infection." One test showed the presence of tularemia infection; the ticks concerned were collected in Walnut State Park, Polk County, Iowa, a few miles from Des Moines. One test was incomplete at the time of the report, and the guinea-pig in the remaining test showed fever of undetermined origin. It is expected that further study may throw light on the percentage of ticks harboring the virus of Rocky Mountain spotted fever in this region.

LOUISIANA

Personal.—Dr. Raymond L. Gregory, formerly of Iowa City, has been appointed assistant professor of medicine at the Louisiana State University Medical Center, New Orleans, it is reported.

Graduate Teaching.—The Louisiana State Medical Society is sponsoring graduate lectures in obstetrics in cooperation with the Louisiana State Board of Health. Financed by social security funds, the courses are given in each district for five consecutive evenings and consist of lectures, motion picture demonstrations, consultation conferences and general discussions. The first lectures of the series were given in Minden, October 4-9, and the second in Ruston, October 12-16. Subsequent lectures will be given as follows: Bastrop, October 26-30; Hammond, November 2-6; Natchitoches, November 9-13; Opelousas, November 16-20; Jennings, November 30-December 4; Franklin, December 7-11, and Donaldsonville, December 14-18. Lecturers include Drs. Joseph W. Reddoch, Arthur Caire, Philips J. Carter, Peter Graffagnino, Edward L. King and Walter E. Levy, all of New Orleans, and Clifford R. Mays, Shreveport.

MARYLAND

Personal.—Dr. Humphrey Warren Buckler, since 1905 vice president of the Maryland State Tuberculosis Sanatorium Commission, was elected president, August 13, succeeding the late Charles H. Knapp.

Census of Crippled Children.—A census will be made of crippled children in Maryland to diagnose their disabilities and to determine the need of statewide clinics, the plan to include hospitalization and after-care of children requiring assistance. Only children financially unable to pay for medical care will be eligible for the service, the selection of cases to be made jointly by the local welfare board and the family physician. The Medical and Chirurgical Faculty of Maryland has approved the program, which will be carried out by the Crippled Children's Service of Maryland (Board of State Aid and Charities).

Course for Training in Syphilis Control.—The Johns Hopkins School of Hygiene and Public Health and the Johns Hopkins University School of Medicine, Baltimore, have entered into a joint arrangement with the U. S. Public Health Service whereby a limited number of public health personnel may secure special training for the control and clinical management of syphilis. According to the *Health Officer,* an elective course will be offered this year for students in the school of hygiene. In addition, the surgeon general of the health service will recommend six physicians who have been selected by state and local health officers for special training in venereal disease control. These graduate students will be admitted to a course in clinical syphilology and may be paid the regular fellowship stipend from social security allotments for personnel training. The university also offers one fellowship for a one or two year term at an annual stipend of $1,800 without maintenance. The public health trainees will be assigned to duty in the syphilis clinic at the hospital. Dr. Joseph Earle Moore, associate in medicine at the medical school, will direct the work.

MASSACHUSETTS

Graduate Courses.—The fourth annual graduate extension course, presented in the various districts of the state under the auspices of the committee on postgraduate instruction of the Massachusetts Medical Society, has been opened. The chairmen and the courses are as follows:

Dr. Howard M. Clute, Boston, Acute Abdominal Emergencies.
Dr. Sidney C. Wiggin, Newton, Anesthesia.
Dr. Frank R. Ober, Boston, Arthritis.
Dr. William P. Murphy, Boston, Blood Diseases.
Dr. Robert B. Greenough, Boston, Cancer.
Dr. Everard Lawrence Oliver, Boston, Dermatology and Syphilis.
Dr. Elliott P. Joslin, Boston, Diabetes.
Dr. Paul D. White, Boston, Heart Disease.
Dr. Frederick T. Lord, Boston, Disease of the Lung.
Dr. Donald Munro, Boston, Neurological Surgery.
Dr. Harry C. Solomon, Boston, Psychiatry.
Dr. Chester M. Jones, Boston, Stomach and Duodenal Ulcer.

MICHIGAN

Personal.—Dr. Roy C. Lintner has resigned as physician at the state reformatory at Ionia and has been succeeded by his assistant, Dr. Victor F. Kling.——George F. Forster, Ph.D., professor of biology, Olivet College, has been appointed bacteriologist to the Michigan State Department of Health; he will be on a leave of absence from the college for one year, it is reported.

Hospital News.—The new Jackson County Isolation Hospital, Jackson, was formally opened, August 2; it was erected at a cost of $90,000.——A new series of conferences for the general practitioner opened October 1 at the Receiving Hospital, Detroit. In addition to the usual one hour devoted to the clinical pathologic conference, fifteen minutes will be given over to the presentation of the gross specimens from the necropsy material and operative clinic, and forty-five minutes to a general clinic.

Changes in Health Officers.—Dr. Francis B. Carroll Battle Creek, has been appointed health officer of Van Buren County.——Dr. Kurt C. Becker, Toledo, Ohio, has been named district health officer with headquarters at Royal Oak. He succeeds Dr. Charles H. P. G. Benning.——The appointment of Dr. David Littlejohn, head of the health unit in Midland as health officer of Chippewa County has been announced.——Dr. Lloyd H. Gaston, assistant health commissioner of Mansfield and Richland County, Ohio, has been placed in charge of district health unit 7 of the Couzens Foundation; his headquarters will be in Gladwin, succeeding Dr. Eldred V. Thiehoff.

MINNESOTA

Personal.—Dr. Cecil J. Watson, Minneapolis, has been appointed associate professor of medicine at the University of Minnesota Medical School, Minneapolis, effective September 1. ——Dr. John A. Malmstrom has resigned as health officer of Virginia to engage in private practice.——Dr. Thomas E. Broadie has been appointed superintendent of Ancker Hospital, St. Paul, succeeding the late Dr. Seymour R. Lee.

Society News.—The Nicollet-Le Sueur and the Blue Earth county medical societies were the guests of the St. Peter State Hospital, September 2; Dr. Alfred W. Adson, Rochester, discussed indications for sympathectomy in cases of essential hypertension.——The Minnesota Academy of Medicine was addressed in Minneapolis October 7 by Drs. Arnold Schwyzer, St. Paul, on "Chordoma," and Samuel E. Sweitzer and Carl W. Laymon, "Severe Cutaneous Reactions to the Barbiturates." ——Dr. Chauncey N. Borman will discuss "Roentgen Diagnosis of Spontaneous Internal Biliary Fistula and Gallstone Obstruction" before the Hennepin County Medical Society, October 21, and Dr. Cyrus O. Hansen, "Coutard Method of X-Ray Treatment." Dr. Walter C. Alvarez, Rochester, addressed the society, October 1; his paper was entitled "Helpful Hints in the Diagnosis of Puzzling Types of Indigestion."

MISSOURI

Society News.—Dr. Marriott T. Morrison discussed "Treatment of Gonorrhea in the Male" before the St. Louis County Medical Society, September 23.——The South Central Counties Medical Society was addressed in Houston, August 6, by Drs. Duff S. Allen, St. Louis, on "Differential Diagnosis of Acute Abdominal Conditions", and Carliss Malone Stroud, St. Louis, "Allergy."——Dr. Austin A. Hayden, trustee, American Medical Association, Chicago, showed a motion picture film depicting the activities of the office of the Association at a meeting of the St. Louis Medical Society, September 15.

NEW JERSEY

Scarlet Fever Closes School.—The grade school in Parsippany was closed September 30 by the Parsippany-Troy Hills Township Board of Health because of three cases of scarlet fever among the pupils, according to the New York *Times*. All other public gatherings were banned by the board of health.

Society News.—At a joint meeting of the Bergen County Medical Society with the Bergen County Pharmaceutical Association in Englewood, September 29, Dr. Arthur C. De Graff, New York, spoke on "How Can the Practicing Physician Know the True Therapeutic Value of Drugs Recently Introduced in Medicine?" and George C. Schicks, Ph.C., assistant dean, New Jersey College of Pharmacy, Rutgers University, Newark, "Better Understanding of Official Medication."——Dr. Herbert F. Traut, New York, addressed the Hudson County Medical Society in Jersey City, October 6, on "Cardiac Complications in Pregnancy."

Progress on Medical Center at Jersey City.—The cornerstone of the medical building of the Medical Center of Jersey City was laid by President Roosevelt, October 2. The ceremony marked the half-way point in the program financed by Jersey City, Hudson County and the Public Works Administration and designed to make the institution the third largest medical center in the United States. The medical building will be one of seven large structures of the skyscraper type and several smaller buildings. It will cost $4,545,000 and is being erected on the site of the old Jersey City Hospital. Ultimately the Medical Center will have a capacity of 2,000 beds. Completed units include the surgical building, the staff house and the nurses' building, and ground has been broken for a new eighteen story building to include the present six story medical unit and the twenty-three story surgical unit connecting wing. The Hudson County Tuberculosis Hospital, another unit, costing $3,960,000, is complete except for furnishing and equipment. The Margaret Hague Maternity Hospital, with facilities for 300 adults and 300 babies, is also finished. The Out-Patient and Psychiatric Hospital, financed by Jersey City and the PWA at a cost of $2,500,000, and not yet under construction, is to be a ten story structure. The buildings are of steel skeleton construction, fireproof and of buff-colored brick, with granite and terra cotta exterior trim. While the plan for the Medical Center originated in 1921 with Mayor Hague, who is still in office, the historical development of the center goes back to 1881, when a small hospital was erected by the city. A more modern hospital was built in 1906, and in 1917 the cornerstone was laid for a second building and two stories were added to the old building. With the subsequent influenza epidemic the hospital was enlarged to include a nurses' home. In 1929 the cornerstone was laid for the twenty-three story surgical building, the highest structure in Jersey City, the ten story Maternity Hospital, and the seventeen story Nurses' home, which is both a training school and a residence.

NEW YORK

Foreign Licentiates in New York.—At a meeting of the New York State Board of Regents, September 21, it was voted that on applications filed after October 15 no license issued by a legally constituted board of examiners in any foreign country will be endorsed until the applicant shall pass the licensing examination prescribed by law or regents' rule.

Society News.—Dr. Carter N. Colbert, New York, addressed the Medical Society of the County of Nassau, Mineola, September 29, on "The Etiology and Treatment of Polyneuritis in the Alcoholic Addict."——Dr. Earl D. Osborne, Buffalo, addressed the Medical Society of the County of Albany, Albany, September 30, on "The Part of the General Practitioner in the Syphilis Control Program."

New York City

Hospital News.—A revised announcement of a lecture course in dental medicine at Mount Sinai Hospital gives the name of Dr. Seth Selig as the lecturer for March 11, 1937, on "Relationship of Arthritis to Focal Infection" instead of Dr. Robert K. Lippmann. The announcement was published in THE JOURNAL, September 26.

Brooklyn Cancer Institute Dedicated.—The new Brooklyn Cancer Institute, a unit of King's County Medical Center, was dedicated with appropriate exercises, October 13. The institute is an independent clinical unit of the division of cancer of the city department of hospitals, with Dr. William E. Howes as administrative clinical director. The five story brick building has been renovated with WPA funds and will provide accommodations for eighty-six patients, as well as treatment facilities, both radium and x-ray, for outpatients (THE JOURNAL, August 29, p. 721).

Endorsement of Proprietary Hospitals.—Sixty-two of the sixty-nine proprietary hospitals in the city have been endorsed by the department of hospitals for conforming with city regulations requiring standards of physical equipment and clinical and nursing service. The seven institutions not complying with the department's regulations have minor changes to make before they will be approved. The regulations, effected about a year ago, require that a responsible medical board, including members of the local county medical society, be set up by each institution. Each approved institution now has this board, as well as a registered physician licensed by the state. Since the inauguration of the regulations, five proprietary hospitals have gone out of existence.

Comprehensive Study of Suicide.—The clinical and sociopsychologic phases of the problem of suicide will be investigated in a study to be carried out in the psychopathic division of Bellevue Hospital. The recently organized Committee for the Study of Suicide, Inc., cooperating with the commissioner of hospitals, and the director of the psychiatric division, has worked out a plan of research to be conducted by a special staff. The funds for the work have been contributed by the committee and will be administered by the New York University Medical College, which is affiliated for teaching purposes with Bellevue Hospital. The daily average of seventy-five psychiatric and alcoholic admissions will afford an unusually abundant source of material for special psychologic study. A trained psychiatrist will be in charge of the clinical studies. All data incident to the study will be recorded for use in training young psychiatrists and advanced medical students. It is planned to hold periodic staff meetings to apprise staff members of the progress of the investigation and the most important clinical observations made (THE JOURNAL, April 11, p. 1324).

OHIO

The Bunts Lecture.—Dr. Clay Ray Murray, associate professor of surgery, Columbia University College of Physicians and Surgeons, New York, delivered the Bunts Lecture at the Cleveland Clinic, October 6; his subject was "The Time Element in the Treatment of Fractures." The lecture is under the joint auspices of the clinic and the district fracture committee of the American College of Surgeons.

Pharmacy Exhibition.—The history of pharmacy was depicted in an exhibit at the Cleveland Medical Library Auditorium, October 16, presented under the auspices of the Northern Ohio Druggists Association, Academy of Pharmacy, School

of Pharmacy, department of pharmacology of Western Reserve University, Academy of Medicine and the Cleveland Medical Library. Edward Kremers, Ph.D., professor of pharmaceutical chemistry, University of Wisconsin, Madison, discussed "Source Material for History of the Apothecary Shop," and Dr. James D. Heard, professor of medicine, University of Pittsburgh, "Old Drugs in Old Jars."

Resolution Governing Medical Licensure.—Graduates of medical schools in foreign countries applying for license to practice in Ohio must submit a complete transcript of all work done prior to graduation, according to a resolution adopted at a recent meeting of the Ohio State Board of Registration in Medicine. In case there is any difficulty in the evaluation of this material, the board shall require one year of internship in an approved hospital or one year of education in an approved medical school in the United States. Credentials of foreign applicants must be filed with the secretary of the board at least six months prior to examination.

PENNSYLVANIA

Emergency Medical Relief Service Abandoned.—Emergency medical relief service as it had existed in Pennsylvania since December 1933 was abandoned by the State Emergency Relief Board as of September 19. A special session of the state legislature this year appropriated for relief purposes a sum much less than the amount requested and also fixed inflexibly the proportion of the total that might be spent for administrative costs, it was explained. A delegation representing the Medical Society of the State of Pennsylvania, the state nurses' association, the state dental association and the state pharmaceutical association met with representatives of the relief board August 14 to ask a more gradual transfer of the relief medical service from state to local responsibility. Governor Earle, chairman of the board, asked the delegation to appoint a representative to meet later with the board to confer on the problem. At the August meeting it was pointed out that the relief medical service as administered since December 1933 had maintained a low morbidity and mortality rate and an almost complete freedom from neglect of the sick. In the twelve months July 1935 to June 1936, with an average of 288,000 families on relief, the average cost per relief case for all medical care was 97 cents.

Philadelphia

Dr. Eliason Appointed Professor of Surgery.—Dr. Eldridge L. Eliason, professor of clinical surgery, University of Pennsylvania School of Medicine, has been appointed John Rhea Barton professor of surgery to succeed the late Dr. Charles H. Frazier. Dr. Eliason was graduated from the University of Pennsylvania School of Medicine in 1905 and has been a member of the faculty since 1907 except for two years of army service during the World War. He became professor of clinical surgery in 1925 and was appointed to the same position in the Graduate School of Medicine in 1926. Dr. Eliason is surgeon at the University, Presbyterian and Philadelphia General hospitals.

Pittsburgh

Graduate Courses.—The eleventh series of practical courses presented by the Allegheny County Medical Society, Harrisburg, is now under way. Dr. Howard A. Power opened the first course, October 9, on operative obstetrics. The remainder of the series is as follows:

Dr. David B. Ludwig, Office Gynecology.
Drs. Eben W. Fiske, Harold W. Jacox, Paul L. Jenny, and Jessie Wright, Principles and Practice of Physical Therapy.
Drs. Lawrence G. Beinhauer and Bernhard A. Goldmann, Management and Treatment of the Syphilitic.
Dr. Edmund R. McCluskey, Preventive Pediatrics: Respiratory Disease in Infants and Children.
Drs. Charles Howard Marcy, Leon H. Hetherington and George W. Hobson, Recent Trends in the Treatment of Pulmonary Tuberculosis, with Special Emphasis on the Use of Artificial Pneumothorax.

TEXAS

Personal.—Dr. Robert J. Rowe, Kaufman, has been appointed a member of the state board of health to succeed Dr. George W. Cox, Del Rio, who resigned.——Dr. Howard R. Dudgeon, Waco, president of the State Medical Association of Texas, was guest of honor at a dinner given by the McLennan County Medical Society in Waco, September 8. Dr. R. Spencer Wood, president of the county society, presided and speakers included the following former presidents of the state society: Drs. Marvin L. Graves and John H. Foster, Houston; Samuel E. Thompson, Kerrville; John O. McReynolds, Dallas, and Don J. Jenkins, Daingerfield.——Dr. Lloyd B. Sheffield has been appointed health director of the Dallas public school system, succeeding Dr. Edythe P. Hershey, Austin, resigned. Dr. Sheffield has been assistant health director for five years.

Tri-State Meeting.—The thirty-first annual meeting of the Tri-State Medical Society (Louisiana, Arkansas and Texas) will be held in Longview, Texas, October 26-27, under the presidency of Dr. Dunbar R. Baber, Daingerfield. The speakers will include:

Dr. Oscar M. Marchman, Dallas, The Paranasal Sinuses as Foci of Infection.
Dr. Willis C. Campbell, Memphis, Physiological Principles Applied to the Treatment of Fractures.
Dr. Henry M. Winans, Dallas, Undulant Fever.
Dr. Charles A. Wyatt, Marshall, Toxemias of Pregnancy.
Dr. Robert H. Millwee, Dallas, Radiation in Cancer Therapy.
Mr. E. M. McDermott, Dallas, Insurance Under Compensation Act.
Dr. Walter L. Kitchens, Texarkana, The -isms and -pathies of Medicine.
Dr. Seale Harris, Birmingham, Relation of the Pituitary, Thyroid and Adrenal Glands to Hypo- and Hyperinsulinism.
Dr. Roy Carl Young, Covington, La., Forced Perivascular Spinal Drainage, a Valuable Therapeutic Procedure in the Treatment of Chronic Epidemic Encephalitis.
Dr. Shelby B. Hinkle, Little Rock, Ark., Obstetrical Case Management.
Dr. William Hibbitts, Texarkana, Prostatic Resection.
Dr. Leonce J. Kosminsky, Texarkana, Medical Economics.
Dr. Stanley George Wolfe, Shreveport, Newer Aspects in Diagnosis and Treatment of Congenital Syphilis.

Dr. Rosco G. Leland, Director, Bureau of Medical Economics, American Medical Association, Chicago, will deliver the annual oration on "Economics and the Ethics of Medicine."

VIRGINIA

Personal.—Dr. Edward M. Parker, Emporia, was guest of honor at a dinner meeting of the Fourth District Medical Society in North Emporia. Dr. Wright Clarkson, Petersburg, was toastmaster and speakers included Drs. James Morrison Hutcheson, Richmond; Cecil E. Martin, North Emporia; Rufus L. Raiford, Franklin, and Guy M. Naff, North Emporia.——Dr. Nathan W. Stallard, Dungannon, recently completed fifty years of medical practice.

WEST VIRGINIA

Sanatorium Dedicated.—A forty bed sanatorium for Ohio County was dedicated at Roney's Point, near Wheeling, September 17, during the annual meeting of the West Virginia Tuberculosis and Health Association. The building is 1,200 feet above sea level and is one story high, with provision for a second story if necessary. It cost $170,000, of which the county provided $30,000, the Federal Public Works Administration $43,384 and thirty-five citizens of Wheeling guaranteed the remainder, which is to be repaid by the county.

Society News.—Dr. Francis A. Scott, Huntington, addressed the Cabell County Medical Society, Huntington, September 10, on "Orthopedic Treatment of Arthritis."——Speakers at the meeting of the Kanawha Medical Society in Charleston, September 8, were Drs. William R. Geraghty and William S. Love, Baltimore, on "Fractures of the Skull and Their Treatment" and "Functional Heart Disease" respectively.——Dr. William C. McCally, Cleveland, addressed the Monongalia County Medical Society, Morgantown, September 1, on "Infections of the Hand."——Dr. Walter M. Simpson, Dayton, Ohio, addressed the Ohio County Medical Society, Wheeling, September 25, on "Progress in Artificial Fever Therapy."

WISCONSIN

State Survey of Venereal Disease.—Surgeon Oliver C. Wenger of the U. S. Public Health Service recently completed a survey of the venereal disease activities of the Wisconsin State Board of Health. In his report to the surgeon general he records that the number of patients with dementia paralytica entering the state psychiatric hospital has decreased from 12 per cent in 1913 to 5 per cent in 1935. In 1915, 31 per cent of the pupils in the state school for the blind became blind as a result of gonorrheal ophthalmia, whereas in 1936 only three of 157 pupils were entered on this diagnosis. The state has thirteen clinics widely scattered, and in communities where free facilities are not available indigent patients are treated by private physicians at the expense of the community. Free laboratory service is maintained by the state. A review of case records of the clinics and interviews with physicians, nurses and social workers showed a surprisingly small number of early cases, the report said; in fact, in only one clinic were any primary cases reported. Dr. Wenger also pointed out that most patients remain under treatment and observation till they have received a maximum amount of treatment. Dr. Wen-

ger emphasized the social hygiene program carried on in the schools and colleges since 1919 and attributed to it in great measure the success of the entire program. Two workers are employed full time in lecturing on social hygiene in the schools. In the calendar year 1935 the man worker made nearly 500 talks to a total attendance of more than 25,000 men and boys, the woman worker 265 talks to nearly 16,000 women and girls. Dr. Wenger recommended that the state board of health have on its staff a physician who would devote his full time to venereal disease control. He also suggested an advisory board made up of specialists in urology, syphilology, laboratory diagnosis and related fields, and the employment of more lecturers for the social hygiene program.

GENERAL

Academy of Physical Medicine.—The Academy of Physical Medicine will hold its annual meeting at the Hotel Statler, Boston, October 20-22. The president, Dr. Frank H. Krusen, Rochester, Minn., will speak on "The Present Status of Physical Medicine." Dr. Stafford L. Warren, Rochester, N. Y., will present the Arthur H. Ring Foundation Lecture on "Fundamental Principles Concerned in the Treatment of Gonococcus Infections by Artificial Fever Therapy." Other speakers on the program will include Sir Robert Stanton Woods, London Hospital, London; Dr. William Benham Snow, New York; Dr. Abraham Myerson, Boston; Dr. Rebekah Wright, Boston; Dr. William J. Schatz, Allentown, Pa., and Dr. William F. Roberts, minister of health, St. John, N. B.

Memorial to Dr. Ricketts.—Funds are being solicited by Northwestern University to establish a foundation in memory of Dr. Howard Taylor Ricketts, who died in 1910 from typhus fever incurred in Mexico while engaged in a study of its mode of transmission. Dr. Ricketts graduated from Northwestern University Medical School in 1897. He served as fellow in dermatology at Rush Medical College. In 1903 he received an appointment as instructor and later as associate professor in pathology and bacteriology at the University of Chicago. In 1910, the year of his death, he accepted an appointment as professor of pathology at the University of Pennsylvania School of Medicine. Contributions to the fund, which, it is hoped, will total $100,000, will be deposited with the trustees of Northwestern University for conservation and administration. The fund will be permanent, only the income to be utilized.

Association of American Medical Colleges.—The forty-seventh annual meeting of the Association of American Medical Colleges will be held in Atlanta, Ga., October 26-27. The first day's program will be as follows:

Dr. James N. Baker, Montgomery, Ala., Need for Closer Integration of the Agencies Interested in Medical Education and Licensure.
Edwin E. Reinke, Ph.D., professor of biology and secretary of the faculty, Vanderbilt University, Nashville, Liberal Values in Premedical Education.
Ralph J. Gilmore, Ph.D., professor of biology, Colorado College, Colorado Springs, Liberal Arts Background for Medicine.
Dr. Frank L. Babbott Jr., New York, What Medical Colleges Expect Hospitals to Do to Continue the Education of the Intern.
Dr. Claude W. Munger, Valhalla, N. Y., Continued Education of the Medical Student During His Internship.

Tuesday's program will include a presentation of teaching objectives and methods in Emory University School of Medicine. Wednesday there will be a symposium on integration of the medical curriculum, presented by Drs. George S. Eadie, Durham, N. C.; William Boyd, Winnipeg, Manit.; Jonathan C. Meakins, Montreal, Que.; Edward W. Alton Ochsner, New Orleans, and Herman G. Weiskotten, Syracuse, N. Y.

American League Against Epilepsy.—Members of the International League Against Epilepsy living in the United States or Canada have organized an American branch of the league with the following officers: Drs. William G. Lennox, Boston, president; Mynie G. Peterman, Milwaukee, and Temple S. Fay, Philadelphia, vice presidents; Frederic A. Gibbs, Boston, secretary, and Walter B. Cannon, Boston, vice president for America of the international league. The chief qualification for membership is an active interest in the problem of epilepsy or in the care and treatment of epileptic patients. Persons who are not physicians may be admitted up to 10 per cent of the membership. Dues, which include membership in the international league, are $3.75 for four years. The next meeting of the American branch will be during the annual session of the American Medical Association in Atlantic City in June 1937. Interested persons should communicate with Dr. Gibbs, 910 Medical Building, Boston City Hospital, Boston. Dr. Lennox is president of the international league, which will hold its next meeting with the International Neurological Congress in Copenhagen.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 5, 1936.

The Treatment of Maxillofacial War Injuries

In 1932 the army council appointed a committee to report on the treatment of the wounds of the jaws and face that occur in modern warfare. Among the members of the committee were Sir Harold Gillies, the leading plastic surgeon in this country, Col. J. P. H. Helliwell, formerly commandant of the army dental corps, Mr. W. Kelsey Fry and Mr. W. Warwick James, dentists who have devoted special attention to this subject. The report, based largely on the experience of the great war, can be described as the last word on the subject. The matters investigated were (1) the provision and equipment of special hospitals or departments for maxillofacial injuries, (2) general methods of treatment and (3) the training of dental officers in the principles of preliminary treatment in the field. The committee assumes that it would be practicable to give only first aid until the wounded man has reached the main dressing station, which may not be for some hours. It makes the following recommendations:

PRELIMINARY TREATMENT

In the early stages, preliminary treatment would be restricted to life saving and would chiefly be the prevention of suffocation and the arrest of hemorrhage. Simple instructions should be given on these points to all men collecting the wounded. The danger of suffocation is most commonly due to loss of control of the tongue. As the result of the injury, this may occur to such a degree that the air passages are obstructed. Posture is then of vital importance and stretcher bearers should not lay the wounded man on his back but on his chest, with the head hanging over the end of the stretcher. He should be kept so until passed into medical care. If he is able to walk, he must stoop well forward till he comes under treatment. The committee emphasizes the importance of keeping the tongue well forward, by which stretcher bearers may save many lives. This will also tend to check hemorrhage, but it may be necessary to plug wounds external to the mouth and also to apply digital pressure. At the regimental aid posts and advanced dressing stations little can be done beyond treatment for shock and hemorrhage, but the tongue should be kept forward if necessary by a suture or clip. The throat should be examined and cleared of foreign bodies.

TREATMENT BY THE SURGEON

At the main dressing or casualty clearing stations the surgeons should correct as far as possible displacement of the hard and soft tissues and fix them as early as possible, but without undue tension. When much bone is lost the raw ends should be covered by mucous membrane if practicable and the advisability of sewing mucous membrane to the skin at the margin of the wounds should be considered, if this can be done without tension. Catgut sutures are the best. This suturing greatly reduces the extent and difficulty of later plastic operations, but injudicious overapproximation (which occurred in the war) should be avoided. War experience showed a high frequency of abscess formation in the lower jaw, and therefore the surgeon should consider the advisability of submandibular drainage at the outset by inserting one or more tubes.

TREATMENT BY THE DENTAL OFFICER

There are two main principles: (1) conservation of injured teeth and loose fragments of bone; (2) fixation of displaced fragments of jaw in correct position. The dental officer should be most conservative with regard to extraction of teeth, because

of their importance in the retention of appliances. The exposed pulp of fractured teeth should if possible be removed at once when the teeth may be valuable in subsequent treatment. Unless a tooth is actually involved in the line of fracture, it usually should not be disturbed. The retention of partly detached fragments of bone concerns both the surgeon and the dentist. The recuperative power of the fragments is usually good and as a rule none should be discarded. The slightest attachment of periosteum is justification for retention of a fragment. As long as teeth are present in the fragments and in corresponding region of the maxilla, the dental officer should immobilize the fragments in normal occlusion by interdental wiring. Even if the whole mental region is lost, the molar fragments should be held in normal occlusion by this means. During intratracheal anesthesia the throat should be well packed with gauze until the jaws are ready to be wired together. If necessary a long stout stitch should be passed through the dorsum of the tongue and the ends secured and left until the reflexes are recovered. Owing to the great mobility of the fragments, care is necessary when manipulating a gag. The mandible should be held forward and upward. When this procedure is not possible, owing to an edentulous fragment or corresponding maxillary region, fixation will be more difficult. If the patient has unbroken dentures, these may be used as splints assisted by external bandages. Impression composition or gutta percha may be molded inside the mouth to control the fragments. The surgical wiring of fragments is absolutely contraindicated in all compound fractures of the mandible. As a rule, fractures of the maxilla are simpler to deal with than those of the mandible. The fragments can be supported by the mandibular teeth with the aid of an external bandage. If the fracture is on one side, the sound side can be wired to the mandible. If possible, it is better to arrange a support independent of the lower teeth, such as the modified Kingsley splint.

Liability of Nursing Home for Contraction of Puerperal Fever

In the house of lords (the highest court in this country) an appeal was heard with regard to the liability of a maternity home for a patient contracting puerperal fever in it. The home was a small one, containing only sixteen beds, and was administered by the county council of Lindsey, Lincolnshire. Some of the beds were in single rooms, known as private wards, for which a weekly charge of $21 was made. For the beds in the public wards the charge was $10. The patients were attended by their own physicians, but the council provided the nursing staff. June 30, 1933, a woman was admitted and on July 4 she developed a high temperature. Her physician diagnosed appendicitis and she was removed to Grimsby Hospital. The ward in which she lay and the nurses in contact with her were disinfected. It subsequently was found that she was suffering from puerperal fever. When this was known at the home, another disinfection took place—on July 5. In cases of puerperal fever, swabs are taken of the throats of all persons in contact with the patient to ascertain whether any one is a carrier. In this case no swabs were taken, as it was thought that the disinfection would render this useless. July 9 another woman was admitted. She developed a temperature of 100.6 on the following day, after her confinement. Puerperal fever was diagnosed.

July 12 the respondent in this appeal arrived. She had arranged for a private ward, but none was available and she had to go into a public ward. Nothing was said about the previous cases. She was delivered, July 13. On July 16 four patients and on July 17 the respondent developed puerperal fever. She was removed to the hospital. The home was then closed. She brought an action against the council on the grounds of (1) breach of contract in not giving her a private room, (2) negligence of their servants in not closing the home before her admission, and (3) failure to inform her or her medical adviser of the case of puerperal fever. The appellants pleaded that there was no breach of contract on their part and no negligence on the part of their servants or agents and that their only duty to her was to provide a competent medical nursing staff for the home, which they did. The jury found that there was a breach of contract in not supplying a private room and a breach of duty in administration, because swabs of the throats had not been taken and information as to the case of puerperal fever was not given. They gave damages of $3,750. The case was taken to the court of appeal, where the judgment in the lower court was affirmed. A further appeal was then made to the house of lords.

The lord chancellor in giving judgment for the respondent said that the jury was justified in thinking that without taking swabs there was a grave risk that a carrier might be present, and that until this was eliminated it was dangerous to admit a new patient. It was contended that even if there was negligence the appellants were not responsible in law but that the responsibility rested on their health officers, who controlled the administration of the home. He was unable to accept that view. The appellants were carrying on a maternity home and were inviting prospective mothers to use it. They therefore owed a duty to them to make the premises reasonably safe or, if there was any hidden danger, of which they ought to have been aware, to give those invited due notice. Also they were responsible in law for the mistakes of their agents. It had been argued that it had been decided that where a public authority carried on a hospital it was not responsible for mistakes in medical treatment or nursing, provided reasonable care was taken in appointing competent nurses and physicians. This had no application to the present case. The respondents did not provide medical attendance and there was no complaint that the nurses were wanting in skill. The complaint was that the appellants invited the respondent to a home which they ought to have known was in a dangerous condition and did not inform her. When a corporation acted through an agent it was liable for his mistakes whether he was a physician or belonged to any other profession.

Lord Elibank Heads the Osteopathic "General Council"

The collapse of the osteopaths' attempt to obtain official registration in this country has been described in previous letters. They have now set up "A General Council of Osteopaths" to regulate the practice of osteopathy. Standards of education and training are to be laid down, the creation of institutes for teaching is to be fostered, and a register of osteopaths is to be compiled. Provision is to be made for two members of the medical profession and two scientists to sit on the council. Lord Elibank, who in 1934 introduced into the house of lords the bill to regulate osteopathy, which was rejected, is to be the first president. It has always been possible in this country to obtain the support of persons of high social position for irregular cults of all kinds.

Sodium Nitrite Poisoning

The first cases of fatal poisoning due to sodium nitrite in this country have occurred. The victims were a chemical worker, aged 44, his wife, aged 42, and her daughter by a former marriage, aged 5. They died within two hours of dining. It appears that sodium nitrite had been used in mistake for common salt. The potatoes cooked for the dinner were noticed to be of a peculiar brown. The public analyst found in the organs evidence of sodium nitrite and of no other poison. He suggested that rhubarb, which was eaten at the dinner, would by its acidity quickly decompose the nitrite, with evolution of toxic nitrous acid. It was supposed that the man

took away some nitrite from the works. The only use that he could have had for it was thought to be as a plant food. The poisoning of a family by sodium nitrite has previously been recorded in England, but all the affected persons recovered.

PARIS

(From Our Regular Correspondent)

Sept. 5, 1936.

Organized Medicine Proposes to Aid State Social Program

At the last elections for members of the legislature, the Left parties, a combination of the Communists and the Socialists known as the "Front populaire," obtained the majority of votes. The new secretary of public health is making a laudable effort to improve health conditions in general and rural sanitation in particular. He has welcomed the aid of organized medicine in carrying out his program of extension of the benefits of preventive medicine to all classes of citizens. In the August number of the bulletin of the Conféderation des syndicats médicaux, an organization which represents all the regional syndicates or societies aiming to look after the relations of organized medicine to the public, the question of the part to be taken by members of these societies in the proposed preventive medicine measures is discussed in detail. A circular sent to all physicians first quotes a resolution passed by the "syndicat" of the department of the Seine, in which Paris is situated, to the effect that "organized medicine is ready to assume technical responsibility, by collective contract, for the organization and functioning of preventive medicine." Two methods have been proposed to fulfil this obligation: first, to appoint four or five medical officers for each department (there are eighty-six in France), who shall be responsible for all branches of preventive medicine, such as periodic health examinations preliminary or not to training for competition in sports, vaccinations, antepartum and nursling consultations, and so on. The other method is to confide the entire administration of the law to the local "syndicats" or county (departmental) medical societies, the latter being granted a certain sum annually by the government, which could be distributed to such members as had taken part in carrying out the provisions of the law.

The circular explains that only preventive medicine and not actual care of the sick or injured is to be regarded as constituting the duties of those who aid in the preventive medicine work. This means that most loyal cooperation on the part of all volunteers will be necessary if the profession is to take advantage of showing what organized medicine can do. It is proposed to begin the work in only a small number of departments, so as to ascertain what local modifications will be necessary.

In the collective contract between the "syndicats" and the secretary of public health, it is proposed to establish health centers in every city and smaller community, in which complete physical examinations will be carried out, these centers to serve also with the aid of specialists and laboratories as diagnostic agencies. Owing to the rapid development of the interest in sports in France, all those who wish to participate shall be obliged to be examined at regular intervals. Prophylactic vaccinations (variola, diphtheria, tetanus) are to be noted in a book to be kept by every schoolchild. Other duties of these public health centers are to give antepartum advice and examination and consultations for nurslings and infants, all of the latter also being recorded in a book to be kept by mothers. Every child and adolescent will be given a "livret de santé," or health record, in which all types of examinations will be noted. How practical it will prove to be for local medical societies to take charge of all these public health duties remains to be seen.

The Causes of Road Accidents

Some interesting statistics appear in the June Bulletin of the French Union of Tourist Associations. There are 2,075 first aid stations distributed over all the automobile highways of France. In spite of the rule that gives priority to a machine on the right when two automobiles have occasion to cross, the number of accidents remains higher than it ought to be. One reason is that speed regulations are seldom observed here. Motorcycle policemen who watch for speeders are almost unknown in France. In the 1935 statistics of the union, failure to observe the code (priority belongs to the machine on the right) and lack of prudence caused 50.9 per cent of the accidents. Next in order of frequency came skidding on dry roads 14.9 per cent, unknown causes 8.36 per cent, attempts to pass another car during the day 6.95 per cent, skidding on wet roads 6.51 per cent, bad condition of machine 6.19 per cent, faulty lighting or visibility 6.19 per cent, trying to pass another car at night 2.39 per cent, and physiologic (!) causes 1.88 per cent.

When the various modes of locomotion are considered, the accidents during 1935 can be placed in the following groups: automobiles 51.66 per cent, bicycles 20.86 per cent, motorcycles 11.38 per cent, pedestrians 7.15 per cent, unclassified 2.81 per cent, horses 1.38 per cent and airplanes 0.02 per cent. This second statistical study shows that, in proportion to their number, more accidents were due to bicycles and motorcycles than to any other form of transport.

Results of 1,256 Sympathectomies

The surgery of the sympathetic nervous system is of comparatively recent date; hence the report of 1,256 operations made by Leriche and Fontaine at the June 10 meeting of the Académie de chirurgie is of interest. The largest number of operations were 273 on the cervical sympathetic, 178 lumbar sympathetic, 61 resections of the presacral nerve and 574 periarterial sympathectomies. The mortality has been minimal, one death in the 273 cervical and 3 per cent for the lumbar sympathectomies. The utmost precautions must be taken in operating on patients who have chronic infected ulcerations or a localized gangrene, by local disinfection, and prophylactic drainage. In cases of angina pectoris, good results can be obtained in 70 per cent of the cases, provided the coronary obliteration be not too far advanced. In three cases of megacolon, satisfactory results were obtained by combining removal of the superior and inferior mesenteric plexus with a bilateral lumbar sympathectomy. The relief of painful disorders of the extremities does not always follow a periarterial sympathectomy alone. It is often necessary to associate this operation with one on the "neurogliome" and on the rami communicantes. Vasomotor and trophic lesions, Raynaud's disease, scleroderma, chronic edemas, painful posttraumatic osteoporosis, delayed consolidation and chronic varicose and "essential" ulcers are cured in an impressive number of cases. Spasmodic paralyses can be greatly relieved by sympathectomy. The same is true for hyperhidrosis. An arteritis should never be treated by periarterial sympathectomy unless the vessel is permeable; i. e., not obliterated. If such should be the case, an arteriectomy should be combined with a sympathectomy. Resections of the popliteal and posterior tibial arteries are to be done with much caution. In case of obliteration of these vessels, only a lumbar sympathectomy should be performed. In thrombo-angiitis, arterial resection and lumbar sympathectomy have given approximately the same, i. e., 55-58 per cent, good results. In this disease more lumbar sympathectomies than arterial resections were performed. In sclerosing arteritis the reverse was the case, the good results attaining a percentage of 76.4 good results. The surgery of the sympathetic nervous system has a definite place, but in order for it to be efficacious the indications must be well established and a thorough knowledge obtained of the physiopathology.

Only Drug Stores May Sell Medicinal Preparations

The French senate has just passed a bill making it a misdemeanor punishable by a fine of from $2 to $60 for the first and double for the second offense for any establishment other than a drug store to sell preparations which possess curative or preventive properties. This also applies to medicinal plants, which are sold at present in large quantities by department stores and street venders.

Obligatory Antitetanus Vaccination in French Army

A study of the efficacy of vaccination against tetanus made by a committee appointed by the Academy of Surgery revealed that the incidence of tetanus following injury was considerably less in those who had had prophylactic injections of antitetanus serum. This report has made such an impression in military circles that the secretary of national defense, M. Daladier, has just issued an order making vaccination against tetanus obligatory for every soldier, as is antityphoid vaccination and that against variola.

International Congress of Hepatic Insufficiency

A large number of medical meetings at which all nations will be represented form an important part of the program for the world's fair of 1937 to be held in Paris. The Congress on hepatic insufficiency is to hold its meeting at Vichy Sept. 16-18, 1937, under the presidency of Prof. Maurice Loeper of Paris. The congress includes two sections, one on medicine and biology and one on medical treatment and hydrology. The secretary is Dr. J. Aimard, 24 Boulevard des Capucines, Paris.

Obstetrician Promoted in Legion of Honor

An amply merited honor has just been conferred on Professor Couvelaire, head of the Clinique Baudelocque at Paris. He was named a Commander of the Legion of Honor, an order founded by Napoleon, as a recognition of distinguished service to France.

Treatment of Adenopathy Secondary to Cancer of Tongue

A report of work at the Curie Foundation was made by A. Tailhefer at the June 24 meeting of the Académie de chirurgie. Of 110 cases of removal of the lymph nodes secondary to a cancer of the tongue performed between 1923 and 1931, eighty-four cases were selected for a study of end results dating back from five to twelve years since operation. In one of these eighty-four the primary neoplasm was a doubtful papilloma with normal lymph nodes. The other eighty-three cases were all positive for cancer on microscopic study. As a rule, the operation was done about three weeks after cessation of the Curie therapy of the tongue, being carried out on one side of the neck and including the submaxillary lymph nodes and those along the sternocleidomastoid and internal jugular vein. This was followed by application of radium over the cervical region in all cases in which microscopic examination revealed the existence of cancerous changes in the excised nodes. This was true of sixty-nine of the eighty-three cases. Nineteen of the eighty-three in which there was secondary lymph node involvement were cured. Among the sixty-four in which the operation was a failure are included three postoperative deaths, four deaths from intercurrent disease during the first five years after treatment, and four deaths from probable recurrences in which the seat of the latter could not be determined. In nineteen cases of lymph node recurrence, the tongue remained cured. Ten of these nineteen recurrences were on the operated, six on the opposite side and three bilateral. In thirteen cases there was a recurrence of the cancer in the tongue but none in the cervical lymph nodes. In fifteen others, recurrence took place in the tongue, mouth and neck, and in six there were distant metastases. The author emphasized the necessity of thorough removal of all lymph nodes even though the primary lesion in the tongue is minute. The operation should be performed as soon as possible after completion of the radium treatment of the tongue and should include both sides of the neck in all cases in which the primary lesion extends beyond the midline of the tongue. Radium treatment of the cervical lymph nodes is of no avail in curing a postoperative recurrence.

Search for Tubercle Bacilli in Broncho-pulmonary Suppuration

At the June 23 meeting of the Académie de médecine an example of how modern methods of search for tubercle bacilli have permitted the detection of the tuberculous character of pulmonary lesions when least suspected was presented by Professor Bezançon and Drs. Braun and Meyer. Tubercle bacilli were found in the expectoration of patients in whom the usual radiographic and clinical evidences of tuberculosis were present. The association of acid-resistant bacilli to the bacteria found in cases of abscess and gangrene has been known for some time. The use of the Loewenstein technic as modified by Saenz and Costil combined with the Petragnani culture medium has enabled the authors to find tubercle bacilli far more frequently than ever before. In four cases of pulmonary abscess and in one case of bronchiectasis a routine search by cultures of the sputum revealed tubercle bacilli. Staining methods had been positive in only one of the five cases. A number of similar cases, observed by other internists here, were also cited. Couve, in a thesis published in 1933, showed that an active tuberculosis often appeared during the course of or following pulmonary suppurations. Lemierre is of the opinion that the bacilli in a latent often minute tuberculous lesion are set free as the result of the abscess formation. Only systematic search by the culture method will reveal the presence of tubercle bacilli when the principal disease has a different etiology. In the discussion, Sergent believed that the explanation offered by Bezançon and his associates seemed the most plausible one; viz., that the bacilli in a latent tuberculous lesion were liberated by the suppurative process but that one must also consider the possibility that prolonged suppuration weakens the resistance to such an extent that a latent focus becomes active.

International Gastro-Enterologic Congress During the Paris Exposition

The International Gastro-Enterological Society has just arranged its second meeting. The first sessions will be held at Paris, September 13, 15 and 17, 1937, under the presidency of Prof. Pierre Duval of Paris. The questions to be discussed are (1) the early diagnosis of cancer of the stomach and (2) acute and chronic obstruction of the small intestine. The former will form the subject of papers by French and German internists. The French contributions embrace the surgical aspects, Professors Duval and Gosset; the clinical and serologic aspects, Professor Carnot; roentgenology, Dr. Guttmann; gastroscopy, Dr. Moutier; gastroscopic photography, Dr. Garin; chemical diagnosis, Professor Labbé; pathologic histology, Dr. Bertrand, and operative diagnosis, Drs. Gatellier and Charrier.

Professor Konjetzny will present the report of German participants, aided by Professor von Bergmann (medicine), Professor Buerger (chemical diagnosis), Professor Sauerbruch (surgery), Professor Berg (roentgenology), Professor Henning (gastroscopy and gastroscopic photography), and professor Staemmler (pathologic histology).

The second sessions will be held at Vichy, Sept. 16-18, 1937, and the subject will be hepatic insufficiency. Many internists from foreign countries will take part in this meeting.

BERLIN

(From Our Regular Correspondent)

Aug. 17, 1936.

The Klein Reaction for the Diagnosis of Cancer

With the exception of the Freund-Kaminer reaction, no previously known serologic examination method for malignant tumors has been able to make any claim of specificity. As early as 1910 Freund and Kaminer were able to establish that the serum of noncancerous persons destroys cancer cells, whereas that of cancer patients has no such ability. They believed that cancerous persons offered a special protection for the carcinoma cells. A qualification applies, to be sure, as carcinoma serum is able to protect carcinoma cells but not sarcoma cells confronted with lysis. Waterman believes in the validity of these observations and in the predisposition to cancer also assumed by Freund and Kaminer, a tendency probably manifested by the disappearance of the carcinolytic substance.

G. Klein too, in discussing the technic of serologic diagnosis, takes as his point of departure a disturbance in the ability of the organism to defend itself against cancer, and this defect may be termed equivalent to the creation of a predisposition to cancer. Klein improved the Freund-Kaminer cytolytic reaction as well with reference to the widening of its applicability (so that it is immaterial which type of malignant tumor is in question, carcinoma or sarcoma), as likewise with reference to the exact evaluation of the test in both positive and negative directions. Klein substituted for the cell suspension from human tumors used by Freund and Kaminer in carcinolysis a similar cell suspension from an adenocarcinoma in the mouse. Since the Freund-Kaminer reaction follows in a number of other diseases the same course as in cancer and likewise presents difficulties in the technic of its carrying out, it has been found insufficient for diagnostic needs and cannot be of practical significance. Klein was the first to effect a thoroughgoing improvement of the Freund-Kaminer reaction with regard to its specific character so that the correct percentages of cancer-positive and cancer-negative tests could be increased to numbers far in excess of the results obtainable by any other reaction test. The reliability of the criteria and the technic were perfected by Klein in such a way that subjective factors were prevented from influencing the observation of the reaction.

Although the data accumulated to date have ripened into a high percentage of accurate results, the latter have, however, as yet no absolutely uniform character. To effect follow-up examination of the previous significant and promising observations, the national bureau of health entered into collaboration with the Cecilienhaus of Berlin-Charlottenberg, an institution that has under its surveillance an extremely large number of cancer patients. A. Pickhan, E. Haagen and W. Imhäuser have recently reported this helpful undertaking in the *Reichsgesundheitsblatt*.

In the Klein reaction the exclusion of a group of disturbing factors is to be borne in mind, particularly those of an endogenic or exogenic nature, since they may exert a profound biologic influence on the entire organism as well as on the composition of the blood serum and consequently on the result of the reaction. The troublesome factors that do not permit an examination of the blood serum till they have been removed are (1) nonsterile withdrawal of blood, (2) withdrawal of blood when the patient is not fasting, (3) removal of blood within twenty-four hours after narcosis, after the administration of narcotics, anesthetics, hypnotics, an excessive amount of alcohol, insulin, thyroxine and sodium chloride infusion, after blood transfusion and so on, (4) withdrawal of blood within from six to eight days following cessation of bleeding in more severe cases of external or internal hemorrhage, (5) withdrawal of blood during fever of above 38 C. (100.4 F.), (6) withdrawal of blood within fourteen days after illumination and within ten weeks after irradiation, and (7) cachexia.

The survey extended over a year and included more than 500 serums of cancer patients, also patients presenting other diseases and normal persons. Hematologic specimens were sent to Professor Klein for examination without notation of the clinical diagnosis, as "blind tests." Chronologically the examinations are divided into three sections, each of which was considered separately: section 1 from December 1934 to May 1935, section 2 from May 1935 to July 1935, and section 3 from July 1935 to February 1936.

Section 1 comprises 309 cases all told. In attempting a critical analysis of the material, eighteen cases (5.85 per cent) were eliminated from consideration a priori on the basis of Klein's list of disturbing factors. These modifying influences have to do with either incomplete fasting during the withdrawal of blood, cachexia, hemorrhages, operations or irradiation during the susceptible period. Accordingly, 291 cases remained to be evaluated. Because the degree of correspondence between the clinical determinations and the serologic diagnoses was not clear in seventy cases (22.6 per cent of the total), these cases were eliminated from consideration pending further investigation. Thus finally the number of cases actually analyzed was reduced to 221 (71.52 per cent). As serologically correct, 146 cases (that is, 66 per cent of 221 cases and 47.25 per cent of 309 cases) could be diagnosed; seventy-five cases (that is, 33.94 per cent of 221 cases and 24.26 per cent of 309 cases) could be diagnosed as serologically incorrect. Among the seventy cases temporarily set aside, one case, that of a clinically undefined pulmonary tumor, was considered as in a class by itself. In nineteen cases the first interpretation was later changed. With the inclusion of these sixty-nine clarified cases, 290 specimens of serum were used for the final evaluation. The serologic diagnoses corresponded with the clinical observations in 182 cases (62.76 per cent); in 108 cases (37.24 per cent) there was, on the other hand, a lack of agreement. This section showed the extraordinary importance of the various disturbing factors for the observations as a whole.

In section 2 a number of cases were grouped together on the basis of even more painstaking investigation. These cases were able to hold their own against any objective criteria with reference to the proper preparation of the patients, exclusion of all modifying influences and the employment of the correct technic for withdrawal of the blood (the last named of especial importance for the final result). Of the fifty-eight cases in this group, fifteen had by reason of disturbing influences to remain without consideration in the evaluation. Three other specimens were set aside pending further clinical determinations. Thus there remained forty cases. Of these, thirty were evaluated as correct-positive, six as correct-negative and four as incorrect-negative. This means a result of 90 per cent accurate evaluations (if one is to reckon these small figures in percental terms).

In section 3 there were examined: serums from patients presenting malignant tumors, eighty-two cases; serums of persons not presenting tumors, sixty-seven cases; total, 149 cases.

Of the serums of eighty-two tumor patients, seventy-nine yielded a correct-positive serologic reaction, three cases an incorrect reaction. Of the cancer cases, 96.3 per cent were accordingly correctly evaluated. Of the serums of sixty-seven persons not presenting malignant tumors, sixty-four exhibited a correct-positive serologic reaction and three an incorrect-positive reaction. Accordingly, 95.5 per cent of the cancer-free serums were correctly diagnosed. Four cases as not free from modifying influences and six cases pending further investigation had to be set aside. The final figures for section 3 with the foregoing ten cases deducted is as follows: serums of patients presenting malignant tumors, seventy-six cases; serums of patients not presenting tumors, sixty-three cases; total, 139 cases.

Of the seventy-six tumor serums, seventy-four reacted correct-positive and two incorrect-negative. Accordingly, 97.4 per cent of the malignant tumors were correctly diagnosed from the serum.

Of the sixty-three serums of persons not presenting tumors, sixty-two showed correct-negative and one incorrect-positive reactions. Of the cancer-free specimens, 98.4 per cent were correctly evaluated. The mean of accurate diagnosis of the serums of both cancer patients and cancer-free persons amounted thus to 97.8 per cent.

These gratifying results in section 3 could have been obtained only through the strictest observance of directions and exclusion of all unduly influenced cases. This survey had at its disposal a larger selection of case material than could have ordinarily been obtained in practice. On the other hand, a considerable amount of fluctuation, particularly toward the unfavorable side, must be reckoned with and this is due to the greater incidence of the disturbing influences outlined. This is probably all the more frequently the case when the serums are assembled by persons lacking an absolutely uniform point of view.

The Klein cancer reaction is thus able, as Pickhan and his collaborators conclude, to function as Klein himself had claimed it would, with reference to both positive and negative evaluation or, in other words, for the determination of the presence or absence of cancer. However, the restricted selection of cases and the precautionary measures instituted with regard to the withdrawal of blood had to be most rigorously observed. These prerequisites are, however, extremely far reaching and greatly restrict the practical applicability of the method, the more so since the withdrawal of blood can take place only at the hospital. Withdrawal of the blood specimen by a practicing physician must therefore as a rule be rejected.

To what extent the Klein cancer reaction can succeed in being of general significance in the practice of medicine can be determined only after a further extensive collection of data, since in the foregoing material all diagnoses of cancer and other conditions had already been determined either clinically, histologically or roentgenologically. No single cases had therefore been detected by serologic reaction alone. Then too, it has yet to be determined whether the Klein reaction can provide an early diagnosis and whether it can be used as an indication of cure subsequent to operative or radiation therapy.

A recent issue of the *Münchener medizinische Wochenschrift* contains an account of various clinical investigations with this Klein cancer reaction. The Würzburg Surgical Clinic has made a two year study (under Dr. Reimers) of this procedure and carefully prepared no less than 691 blood specimens. As the controls showed, the reaction here too presented the same percental numbers of correct results, the "blind test" procedure being followed. A number of specimens were eliminated because of the impossibility of carrying on the clinical observation over a sufficiently extended time; several cases were also obscure. Of the remaining 628 cases, 181 by reason of the modifying factors could not be statistically evaluated. In the end there actually remained 438 cases incontestably established both clinically and histologically. Of the cases in this group, correct diagnoses were made in 411 instances by the Klein test. The proportion of accurate results amounted on the average to 93.7 per cent.

Above 84 per cent of malignant tumor cases were correctly diagnosed. Among these, six cases of recurrence after radical operation were accurately recognized, whereas of twenty-two carcinoma cases not previously treated only nineteen, that is, 86.5 per cent, exhibited correct-positive reactions. The sarcoma cases presented less favorable results of twenty-eight cases (that is, 92.9 per cent) of benign tumors; twenty-six were correctly detected as negative. Likewise virtually all other types of tumors, struma or hypertrophy of the prostate, for example, showed correct-negative reactions. It was concluded from these results that by the Klein test it is possible to differentiate malignant and benign tumors with a greater certainty.

In the Second Medical Clinic of the German University at Prague, as reported by Dr. Gröger, the test was performed on ninety patients in whom the presence of malignant neoplasms was regarded as a possibility. After elimination of all influenced cases, sixty-eight cases remained as material for evaluation. In 92.6 per cent of these cases the reaction found was proved by the further clinical course to have been correct. This corresponds favorably with the results obtained at the other clinics. Finally the Surgical Clinic of Munich had undertaken a more protracted investigation, which Dr. Hepp discusses. Some 700 blood specimens in all were sent in to Professor Klein and some 200 of these were submitted "blind"; namely, without any information as to the nature of the sickness or the case history. Specimens to which intentionally falsified information was appended were also submitted. The result showed that an average accuracy of 90 per cent could still be maintained. The open group (that is, the serum specimens that were accompanied by data) yielded 93.4 per cent correct diagnoses, the "blind" group 90.2 per cent. Both carcinoma and sarcoma cases reacted positively. Differentiation of benign and malignant tumors succeeded in a large majority of cases. It was especially noteworthy that hypertrophy of the prostate could be distinguished from carcinoma of the same organ in a high percentage of instances. All things considered, the Klein reaction seems to represent a forward step; any definite estimate of its worth must await further research and discussion.

Early Arising from Bed After Operations

The question of the best time for a patient to quit his bed in the postoperative period has been to the fore. In 1935 Paschoud of Lausanne in particular established a definite "earliest time." Professor Flörcken, surgeon, of Frankfort, has meanwhile undertaken large scale observations of the same subject. Excepting in special cases of infection, of heart disease or of exophthalmic goiter, Flörcken had all his patients who had undergone operations out of their beds on the day of the intervention or, at most, from one to two days afterward. The patients were permitted to sit in easy chairs or to go about in the room. If increased temperatures unrelated to bronchitis were exhibited, the getting up was for the time being postponed. A principal presupposition for early quitting of bed is that the operation shall have run a smooth course. A protective dressing of elastic material should be applied after abdominal and hernial operations and a plaster-of-paris dressing, according to the Böhler method, following intervention in the soft parts. These appliances must be placed in such a way that they do not inhibit ambulation.

The results of 219 abdominal and hernial operations performed on patients above the age of 30 (under diverse types of anesthesia and narcosis) were as follows: Of five fatal cases advanced carcinoma was present in four; of three patients who died of embolism, two presented inoperable carcinoma. One patient died of pulmonary embolism sixteen days after an operation for severe appendicitis with peritonitis. Indeed, this patient presented particularly complicated pathogenic conditions and had already previously been afflicted with an embolus. Cancer patients, especially if bedfast prior to the operation, were not permitted to leave their beds very early thereafter. The rest of the patients recovered completely without complications; postoperative pneumonia was not observed in a single instance.

Early postoperative arising offers, according to Flörcken's investigations, a whole series of benefits. The procedure dispels the feeling of illness in a remarkably short time, the functions of the bladder and of the intestine that otherwise frequently

require artificial assistance are for the most part spontaneously reestablished. At the same time the hospital staff is spared additional burdens. Especially remarkable was the rapid recovery and uneventful convalescence of three patients who had undergone operations for severe scar hernias. Early postoperative arising means earlier discharge from the hospital and subsequent resumption of normal activity.

The Death of Professor Vulpius

Oscar Vulpius, emeritus professor of orthopedics at Heidelberg, was killed in an automobile accident at the age of 69. Vulpius was known as one of the founders of the modern German orthopedic school. Particularly noteworthy among his many valuable contributions to orthopedic surgery were the operative methods devised by him for the surgery of the tendons and joints and for tendon implantations. In addition to his published work on orthopedic therapy, Vulpius made numerous useful contributions to the literatures of the care of the deformed and of the treatment of poliomyelitis. His teachings on the technics of orthopedic surgery have likewise exercised a widespread influence.

Marriages

HENRY FRANKLIN GLENN JR., Gastonia, N. C., to Miss Mary Jean Smith of Sylacauga, Ala., in Montreat, recently.

ROBERT JAMES MCCLURE to Miss Phyllis H. Gratton, both of New Haven, Conn., at Charlevoix, Mich., August 19.

SOLOMON B. MEYERSON, St. Charles, Ill., to Miss Ida Edith Fisher of Long Branch, N. J., in Chicago, August 2.

ELIAS SMITH FREY, Louisville, Ky., to Miss Eloise Brown of Concord, Ga., in Atlanta, Ga., September 16.

LOUIS AUGUSTINE GIULIANO, South Norwalk, Conn., to Miss Mary Frances Dono of Brooklyn, August 2.

DONALD L. BORGEN, Gowrie, Iowa, to Miss Helen B. Guenther of Sandusky, Ohio, September 20.

ROBERT SALINGER to DR. WINIFRED S. HULL, both of New Haven, Conn., in Brewster, N. Y., July 23.

EARL LEWIS CLAY, Oxford, N. C., to Miss Nell Smith Armistead of Nathalie, Va., September 9.

HENRY C. ROSENSTIEL, Freeport, Ill., to Miss Mildred Mershon of Mount Carroll, August 15.

BENJAMIN ANDERSON STRICKLAND JR., to Miss Lue Anne Massie, both of Baltimore, July 18.

WILLIAM H. M. ERB, Sassamansville, Pa., to Miss Sara Anne Smith of Hazleton, July 6.

JOHN M. WHITNEY, Jennings, La., to Miss Georgiana Rita Burst in New Orleans, August 1.

SALVATORE MEGNA, Milwaukee, to Miss Glendora Christensen of Two Rivers, Wis., July 15.

JOSEPH D. GATTI to Miss Mary B. Barteluce, both of Hackensack, N. J., August 1.

KENNETH EUGENE POWELL to Miss Doris Elizabeth Appell, both of Galva, Ill., October 3.

WILLIAM HENRY LACEY, Charleston, S. C., to Miss Dick Dennis of Pinopolis, July 26.

RICHARD PETER NEARY to Miss Winifred Rita O'Reilly, both of Minneapolis, September 5.

HAROLD E. HAYMOND, Perry, Iowa, to Miss Isabel Crawford of Minburn, September 16.

ARTHUR BRUCE GILL to Miss Mabel Halsey Woodrow, both of Philadelphia, August 3.

KINLOCH NELSON to Miss Alice Magill Deford, both of Richmond, Va., July 23.

JAMES BLISH MCBEAN to Miss Grace Agnes Callan, both of Chicago, August 19.

EDWARD W. MENCHER to Miss Nadine Greenman, both of New York, August 9.

RICHARD B. NELSON to Miss Vera Prior, both of Hammond, Ind., July 25.

WILLIAM O. OTT, Fort Worth, Texas, to Miss Merle Gaither, July 17.

Deaths

Howard Lombard Beye ✠ Iowa City, Iowa; Rush Medical College, Chicago, 1911; since 1927 head of the department of surgery, and since 1924 professor at the State University of Iowa College of Medicine, associate professor from 1920 to 1924, assistant professor from 1917 to 1920 and instructor in surgery from 1914 to 1917; in 1913 assistant in medicine at his alma mater; served during the World War; member of the American Surgical Association, the Western Surgical Association and the American Association for Thoracic Surgery; fellow of the American College of Surgeons; attending surgeon to the University Hospitals; aged 50; was killed, September 29, in an automobile accident.

Arthur Van Harlingen, Bryn Mawr, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1867; chief of skin clinic at his alma mater, from 1871 to 1883; professor of dermatology from 1883 to 1895 and emeritus professor from 1895 to 1912 at the Philadelphia Polyclinic; formerly clinical lecturer at the Jefferson Medical College, Philadelphia; past president of the American Dermatological Association; for many years on the staff of the Children's Hospital; author of "Handbook of the Diagnosis and Treatment of Skin Disease," in 1884, which was published in four editions; aged 90; died, September 23.

William Duffield ✠ Los Angeles; University of Pennsylvania Department of Medicine, Philadelphia, 1893; member of the House of Delegates of the American Medical Association in 1932; at one time vice president, and councilor of the Second District, California Medical Association; past president of the Los Angeles County Medical Society; past president and secretary of the Southern California Medical Association; past president, vice president and trustee of the Barlow Medical Library; member of the staffs of the Clara Barton Hospital and the California Lutheran Hospital; aged 69; died suddenly, September 9.

Edward Jonathan Klopp ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1906; also a pharmacist; professor of surgery at his alma mater; member of the Western Surgical Association; fellow of the American College of Surgeons; member of the medical advisory board of Philadelphia, during the World War, and until 1930 a member of the U. S. Naval Reserve Force; aged 56; consulting surgeon to the Girard College; attending surgeon to the Delaware County, Pennsylvania and Memorial hospitals and the Jefferson Hospital, where he died, September 19, as the result of subacute bacterial endocarditis.

Arthur Parker Butt Sr. ✠ Elkins, W. Va.; College of Physicians and Surgeons, Baltimore, 1895; past president and secretary of the West Virginia State Medical Association; past president and secretary of the Barbour-Randolph-Tucker Counties Medical Society; fellow of the American College of Surgeons; medical superintendent and owner of the Elkins City Hospital; aged 65; died, August 5, of coronary thrombosis.

Manfred Call ✠ Richmond, Va.; Medical College of Virginia, Richmond, 1899; professor of clinical medicine and formerly dean at his alma mater; member of the medical staff, Stuart Circle Hospital; one of the founders of the Children's Memorial Clinic; member of the staff, outpatient service, Memorial Hospital; aged 59; died, September 13, in the Johns Hopkins Hospital, Baltimore, of bronchiogenic carcinoma.

Charles Arthur Zeigler, Amboy, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; member of the Illinois State Medical Society; president of the Lee County Tuberculosis Society; for many years a member of the board of education; aged 68; died, July 6, of occlusion of the coronary artery.

Juan L. Payawall, Ramsey, N. J.; University of Maryland School of Medicine, Baltimore, 1917; member of the Medical Society of New Jersey; served during the World War; formerly member of the board of health; aged 41; died, July 27, in St. Joseph's Hospital, Paterson, of acute appendicitis, general peritonitis and postoperative hemorrhage.

Elisha Hall Gregory Wilson ✠ Cape Girardeau, Mo.; Washington University School of Medicine, 1905; past president and secretary of the Cape Girardeau County Medical Society; served during the World War; on the staff of St. Francis Hospital; aged 56; died, July 12, in the Missouri Baptist Hospital, St. Louis.

Benjamin Edward Twitchell Jr. ⊕ Assistant Surgeon Lieutenant (j. g.) U. S. Navy, Parris Island, S. C.; University of Illinois College of Medicine, Chicago, 1931; entered the navy in 1930; aged 32; died, July 25, in the Naval Hospital, of fracture of the cervical vertebrae caused by diving into a shallow swimming pool.

Edward Milton Brown ⊕ Chicago; Northwestern University Medical School, Chicago, 1893; clinical professor of surgery, Loyola University School of Medicine; fellow of the American College of Surgeons; senior surgeon to the Mercy Hospital; aged 67; died, September 28, of coronary embolism and chronic myocarditis.

Louis Dwight Robertson, Malone, Texas; University of Arkansas School of Medicine, Little Rock, 1912; member of the State Medical Association of Texas; past president of the Hill County Medical Society; aged 67; died, July 10, of hydronephrosis of the left kidney, aneurysm of the ascending aorta and cystitis.

S. M. Shankle, Hollandale, Miss. (licensed in Mississippi in 1882); member of the Mississippi State Medical Association; mayor of Hillandale; formerly member of the state legislature; aged 74; died, July 9, in the King's Daughters' Hospital, Greenville, following an operation for a ruptured appendix.

Oscar Paul Schnetzky, Princeton, Wis.; Milwaukee Medical College, 1903; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; served during the World War; aged 57; died, July 28, in St. Agnes Hospital, Fond du Lac, of carcinoma of the pancreas.

Daniel Capron Norton, Manchester, N. H.; Dartmouth Medical School, Hanover, 1907; member of the New Hampshire Medical Society and the New England Otological and Laryngological Society; on the staffs of the Elliot and Balch hospitals; aged 55; died, July 14, of cerebral hemorrhage.

Erik Theophile Sandberg, Cardinal, Va.; University of the South Medical Department, Sewanee, Tenn., 1899; member of the Medical Society of Virginia; served during the World War; aged 62; died, July 10, in the Elizabeth Buxton Hospital, Newport News, of intestinal obstruction.

Lois Whitford Torres ⊕ Mount Pleasant, Mich.; University of Michigan Medical School, Ann Arbor, 1929; school physician at the State Central Teachers' College; aged 44; died, July 25, in Panama City, Fla., of a lesion of the spinal column involving the central nervous system.

Daniel Erwin James, Holly Springs, Ark.; College of Physicians and Surgeons, Dallas, Texas, 1908; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; at one time member of the state legislature of Louisiana; aged 69; died, July 30, in a hospital at Shreveport, La.

Albertus B. Poppen, Muskegon, Mich.; Rush Medical College, Chicago, 1909; member of the Michigan State Medical Society; fellow of the American College of Surgeons; aged 55; head of the gynecologic department of the Hackley Hospital, where he died, July 10, of heart disease.

Cameron Carpenter Tallman, Fairfield, Iowa; Rush Medical College, Chicago, 1900; member of the Iowa State Medical Society; formerly county coroner; on the staff of the Jefferson County Hospital; aged 61; died, August 1, in Fresno, Calif., of arteriosclerosis and hypertension.

William Edward McClanahan, Baltimore; University of Maryland School of Medicine, Baltimore, 1902; for many years a member of the city health department; served during the World War; aged 57; died, July 23, in the U. S. Marine Hospital, of chronic myocarditis.

Charles A. Evans, Bluffs, Ill.; Medical College of Indiana, Indianapolis, 1896; past president of the Scott County Medical Society; past president of the village board, and member of the local board of education; aged 67; died, July 5, of myocarditis and diabetes mellitus.

Alfred Olin Ellison, Chicago; Hering Medical College, Chicago, 1911; member of the Illinois State Medical Society; served during the World War; on the staff of the Norwegian American Hospital; aged 49; died, July 29, of an overdose of morphine, self administered.

John Fremont Leavitt, Collingswood, N. J.; University of the City of New York Medical Department, 1882; member of the Medical Society of New Jersey; for many years health officer of Camden; aged 77; died, July 22, of arteriosclerosis, myocarditis and nephritis.

Raymond Henry Stenger, Marion, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; served during the World War; formerly on the staff of the Veterans Administration Facility; aged 53; died, July 8, of coronary thrombosis.

Frank Aldis Torrey ⊕ Lake City, Mich.; Northwestern University Medical School, Chicago, 1932; also a pharmacist; mayor of Lake City and county coroner; on the staff of the Mercy Hospital, Cadillac; aged 54; died suddenly, July 11, of coronary occlusion.

James Raymond Cahill ⊕ Otisville, N. Y.; University and Bellevue Hospital Medical College, New York, 1916; at various times health officer of the town of Mount Hope and the village of Otisville; aged 42; died, July 8, of splenic infarction and myocarditis.

Lavord L. Lee, San Antonio, Texas; Birmingham (Ala.) Medical College, 1902; member of the State Medical Association of Texas and councilor of the Fifth District; member of the city board of health; aged 58; died, July 4, of an accidental gunshot wound.

William Fletcher Walling, Binghamton, N. Y.; Long Island College Hospital, Brooklyn, 1903; member of the Medical Society of the State of New York; aged 66; died, July 11, at his summer home in Heart Lake, of coronary occlusion and arteriosclerosis.

Manning Alonzo Rountree, Reidsville, Ga.; University of Georgia Medical Department, Augusta, 1892; member of the Medical Association of Georgia; formerly mayor of Adrian, and state senator; aged 69; died, July 21, in a hospital at Savannah.

Horace Phillips, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1889; served during the World War; member of the Department of Mental Diseases, Pennsylvania Hospital, from 1894 to 1913; aged 69; died, July 23.

Henry Miller Goodman, Louisville, Ky.; University of Louisville Medical Department, 1883; member of the Kentucky State Medical Association; formerly professor of chemistry and toxicology at his alma mater; aged 74; died, July 13.

Rees Philpott, Middleport, Ohio; Western Reserve University School of Medicine, Cleveland, 1920; member of the Ohio State Medical Association; aged 44; died, July 1, in St. Joseph's Hospital, Parkersburg, W. Va., of cerebral hemorrhage.

Everett F. Long ⊕ High Point, N. C.; Medical College of Virginia, Richmond, 1909; at one time health officer of Wake and Davidson counties; for many years on the staff of the Burrus Memorial Hospital; aged 58; died, July 5.

Henry Ford Haskins, Peoria, Ill.; St. Louis University School of Medicine, 1916; member of the Associated Anesthetists of the United States and Canada; served during the World War; aged 43; died, July 25, of pneumonia.

Louise Marie Gerber-Dietmeier, Jasper, Minn.; University of Minnesota Medical School, Minneapolis, 1893; member of the Minnesota State Medical Association; aged 67; died, July 2, in a hospital at St. Peter, of pneumonia.

Jefferson Newton Hoit, San Antonio, Texas; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1904; served during the World War; aged 60; died, July 23, in Des Moines, of chronic myocarditis.

Leroy Thomas Telford, Alma, Ill.; University of Illinois College of Medicine, Chicago, 1936; aged 26; died, July 12, in the Evangelical Deaconess Hospital, St. Louis, of an injury received by diving into shallow water.

Charles Andrew Tignor, Washington, D. C.; Howard University College of Medicine, Washington, 1901; a medical inspector in public schools; aged 60; died, July 12, of prostatic obstruction, infection and hemorrhage.

Frank Scott Glover, Houston, Texas; Atlanta College of Physicians and Surgeons, 1910; member of the State Medical Association of Texas; served during the World War; aged 49; died, July 25, of coronary thrombosis.

Lineus Wayne Fishel, York, Pa.; Jefferson Medical College of Philadelphia, 1920; member of the Medical Society of the State of Pennsylvania; aged 40; died suddenly, July 20, of acute dilatation of the heart.

John Knox, Davenport, Iowa; University of Pennsylvania Department of Medicine, Philadelphia, 1877; formerly mayor, school director and health officer of Princeton; aged 83; died, July 14, of chronic myocarditis.

George J. Rivard Sr., Assumption, Ill.; Chicago Medical College, 1881; member of the Illinois State Medical Society; aged 76; died, July 8, in St. Mary's Hospital, Decatur, of acute pancreatitis and uremia.

John Edgar Hubble, Pomona, Calif.; University of Virginia Department of Medicine, Charlottesville, 1891; member of the California Medical Association; aged 72; died, July 30, of coronary thrombosis.

John Edwin Dougherty, Elkins, W. Va.; Medical College of Virginia, Richmond, 1924; member of the West Virginia State Medical Association; aged 38; died suddenly, July 16, of coronary thrombosis.

Maximilian Allen Richter, Buffalo; University of Buffalo School of Medicine, 1907; member of the Medical Society of the State of New York; aged 76; died, July 28, of cardiovascular renal disease.

James Levi Lee, Auburndale, Fla.; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1882; aged 80; died, July 27, of uremia and chronic nephritis.

Joseph Emmor Peairs, Decoto, Calif.; Kansas City (Mo.) Medical College, 1902; at one time health commissioner of Pueblo, Colo.; aged 73; died, June 23, of cerebral hemorrhage and arteriosclerosis.

Merritt Matthew Gibson, El Paso, Texas; Ohio State University College of Medicine, Columbus, 1929; aged 34; died, July 8, in the Masonic Hospital, of myocarditis and pulmonary tuberculosis.

George Joseph Roy, Brunswick, Maine; Laval University Faculty of Medicine, Quebec, Canada, 1891; aged 73; died, July 1, of arteriosclerosis, cerebral hemorrhage and bronchopneumonia.

Dalton Yancy Rosborough, Palatka, Fla.; Medical College of the State of South Carolina, Charleston, 1919; aged 46; died, July 3, in St. Luke's Hospital, Jacksonville, of angina pectoris.

Sebastian B. Du Bose, Bishopville, S. C.; University of Nashville (Tenn.) Medical Department, 1901; aged 59; died, July 10, in the McLeod Infirmary, Florence, of hemorrhagic colitis.

Henry M. Strickland, Live Oak, Fla.; Hospital Medical College, Atlanta, 1910; member of the Florida Medical Association; aged 48; died suddenly in July, at his camp on Blue Lake.

Lawrence Daniel Roche, New York; Fordham University School of Medicine, New York, 1913; member of the Medical Society of the State of New York; aged 47; died, June 27.

Gratten Almer Ehret, Cleveland; Western Reserve University Medical Department, Cleveland, 1890; past president of the board of education of East Cleveland; aged 69; died, July 30.

Lewis Daniel Hammond, Irvins Store, Ky.; University of Louisville (Ky.) Medical Department, 1895; member of the Kentucky State Medical Association; aged 66; died, July 11.

Robert John Lawlor, Cleveland; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1901; aged 64; died, July 14, of coronary sclerosis.

Fred Bryce Jewett, Melrose, Mass.; Harvard University Medical School, Boston, 1892; medical superintendent of the Reeves Sanatorium, Melrose Highlands; aged 69; died, July 26.

William Edward Redford, Plainview, Texas; Louisville (Ky.) Medical College, 1893; member of the State Medical Association of Texas; aged 70; died, July 18, of pneumonia.

Harold Earl Dodge, Franklin Park, Ill.; Rush Medical College, Chicago, 1890; for many years health officer of Franklin Park; aged 73; died, July 13, of carcinoma of the prostate.

David Alfred Baker, Glendale, Calif.; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1907; aged 54; died, July 19, at Sawtelle, of hypertensive heart disease.

Louis Oscar Lesieur, Biddeford, Maine; Albany (N. Y.) Medical College, 1895; at one time member of the board of health of Rumford; city physician; aged 67; died, July 26.

Jesse Thomas Nugent ⊕ Virgil, Kan.; Washington University School of Medicine, St. Louis, 1909; aged 52; died, July 6, of cholecystitis with gangrene of the gallbladder.

John Walter Telford, Margaretville, N. Y.; New York Homeopathic Medical College, 1886; at one time postmaster of Margaretville; aged 72; died, July 21, in New York.

George Nelson Manning, Wheaton, Ill.; College of Physicians and Surgeons of Chicago, 1894; aged 66; died, July 13, in St. Charles Hospital, Aurora, of cerebral hemorrhage.

Joel Henry Greene, Urbana, Ill.; University of Buffalo School of Medicine, 1875; aged 84; died, July 29, in the Burnham City Hospital, Champaign, of angina pectoris.

Silas Cicero Holloman, Caldwell, Texas; Memphis (Tenn.) Hospital Medical College, 1900; member of the State Medical Association of Texas; aged 55; died suddenly, July 2.

Charles Valentine Pease, Tolland, Conn.; Tufts College Medical School, Boston, 1904; aged 60; died, July 12, in Northampton, Mass., of hypertensive heart disease.

David J. Walter, St. Louis; St. Louis College of Physicians and Surgeons, 1906 and 1914; member of the Missouri State Medical Association; aged 62; died, June 21.

Louis J. Giers, Jerseyville, Ill.; St. Louis College of Physicians and Surgeons, 1891; member of the Illinois State Medical Society; aged 69; died, July 11, of arteriosclerosis.

Winfield Scott Moon, Audubon, Iowa; Barnes Medical College, St. Louis, 1899; aged 60; died, July 16, in the Clarinda (Iowa) State Hospital, of cerebral arteriosclerosis.

Frederick A. Mandeville, Summit, N. J.; New York Homeopathic Medical College and Hospital, 1888; aged 73; died, July 15, of chronic myocarditis and nephritis.

Lyman R. Palmer, New Rochelle, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1880; aged 78; died, July 11, of chronic nephritis and arteriosclerosis.

Charles F. North, Beaver Dam, Wis.; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1884; aged 82; died, July 30, of senile dementia and arteriosclerosis.

William Eugene Sloat, Denmark, Iowa; Long Island College Hospital, Brooklyn, 1873; Civil War veteran; aged 94; died, July 18, in Ottumwa, of arteriosclerosis.

Henry Pilgrim Holt, Torrance, Pa.; College of Physicians and Surgeons, Baltimore, 1886; aged 72; died, July 12, in the Torrance State Hospital, of lobar pneumonia.

William A. Hays, Birmingham, Ala.; Medical College of Alabama, Mobile, 1887; aged 77; died, July 16, in the Norwood Hospital, of carcinoma of the stomach.

Francis E. Rohan, Joplin, Mo.; Missouri Medical College, St. Louis, 1893; served during the World War; died, July 12, of coronary arteriosclerosis and cholecystitis.

Setrac G. Eghian, New York; Medizinische Fakultät der Friedrich-Wilhelms-Universität, Berlin, Prussia, Germany, 1899; aged 60; died, July 30, of carcinoma.

William J. Humphrey ⊕ Union City, Pa.; University of Buffalo School of Medicine, 1890; also a pharmacist; aged 75; died, July 28, of cerebral arteriosclerosis.

John Kemper Johnson, Boaz, Ala.; University of Nashville (Tenn.) Medical Department, 1884; aged 74; died, in July, at Hot Springs National Park, Ark.

Julian Theodore William Kastendieck, Brooklyn; New York Homeopathic Medical College and Hospital, 1888; aged 71; died, July 7, of pernicious anemia.

John L. Slaight, Hot Springs National Park, Ark.; Arkansas Industrial University Medical Department, Little Rock, 1889; aged 79; died, July 4.

Irvine White Patton, Ajo, Ariz.; University of Virginia Department of Medicine, Charlottesville, 1895; aged 64; died, July 1, of chronic myocarditis.

Dudley B. Channell, Oakland, Calif.; Willamette University Medical Department, Portland, Ore., 1894; aged 81; died, July 9, of coronary occlusion.

Richard Gregory Rozier, Lumberton, N. C.; University of Maryland School of Medicine, Baltimore, 1899; aged 67; died, July 1, of myocarditis.

William Petty, Wilkes-Barre, Pa.; Long Island College Hospital, Brooklyn, 1886; aged 75; died, July 5, of cerebral hemorrhage due to a fall.

John Miles Gathright, Oxford, Miss.; Memphis (Tenn.) Hospital Medical College, 1898; aged 64; died, July 17, of myocarditis and nephritis.

John Franklin McCarty, Richmond, Mich.; University of Maryland School of Medicine, Baltimore, 1896; aged 64; died, July 14, of heart disease.

Douglas Caulkins, Knoxville, Tenn.; Hahnemann Medical College and Hospital of Philadelphia, 1886; aged 78; died, July 15, of myocarditis.

Augustus Stanfield, Orange, N. J.; Howard University College of Medicine, Washington, D. C., 1912; aged 45; died, July 1, of nephritis.

Edward Day, Covington, Ky.; Cincinnati College of Medicine and Surgery, 1888; aged 80; died, July 12, of heart disease and chronic nephritis.

Hilton Hammond, South Bend, Ind.; Hahnemann Medical College and Hospital, Chicago, 1887; aged 76; died, July 28, of cerebral hemorrhage.

Robert J. McCready ⊕ Pittsburgh; Bellevue Hospital Medical College, New York, 1873; aged 86; died, July 20, of cerebral embolism.

Sandom Sidney Pace, Lee Park, Pa. (registered in Prothonotary's office in Luzerne County); aged 94; died, July 1, of arteriosclerosis.

William Medill Bair, Des Moines, Iowa; Ensworth Medical College, St. Joseph, Mo., 1886; aged 80; died, July 5, of cerebral hemorrhage.

Henry C. Simpson, Springfield, Ill.; St. Louis Medical College, 1874; Civil War veteran; aged 92; died, July 13, of heat prostration.

Arthur Alexander Rock, Milwaukee; Milwaukee Medical College, 1902; aged 60; died, July 17, of hypertensive cardiovascular disease.

John Moore Delo, Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; aged 61; died, July 15, of cardiac decompensation.

Galen C. Paxton, Santa Monica, Calif.; Louisville (Ky.) Medical College, 1883; aged 81; died, June 23, of coronary arteriosclerosis.

Henry C. Fowler, El Dorado, Ark.; Meharry Medical College, Nashville, Tenn., 1909; aged 55; died, July 25, of gastro-enteritis.

Nimrod Edgar Underwood, Red Bay, Ala.; Chattanooga (Tenn.) Medical College, 1900; aged 67; died, June 19, of septic arthritis.

John Streeter Sidley, Los Angeles; Northwestern University Medical School, Chicago, 1906; aged 57; died, July 23, of pneumonia.

Archibald C. Kennel, St. Louis; Missouri Medical College, St. Louis, 1887; aged 75; died, July 10, of cerebral hemorrhage.

Joseph C. Hudspeth, Sandoval, Ill.; American Medical College, St. Louis, 1882; aged 81; died, July 13, of heat exhaustion.

Lester Dale Rickey, Columbus, Ohio; Ohio Medical University, Columbus, 1903; aged 59; was found dead, July 15, of myocarditis.

John Llewellyn Hamilton, Leavenworth, Kan.; Columbus Medical College, 1881; aged 81; died, July 13, of arteriosclerosis.

Marion A. Young, Abbeville, La.; University of the South Medical Department, Sewanee, Tenn., 1895; aged 62; died, June 4.

Dee W. Kirby, Gurdon, Ark.; Memphis (Tenn.) Hospital Medical College, 1904; aged 55; died, July 17, of heart block.

John Paul Sullivan ⊕ Omaha; John A. Creighton Medical College, Omaha, 1916; aged 55; died, July 14, of sunstroke.

James Henry Stokes, Erin, Tenn.; Vanderbilt University School of Medicine, Nashville, 1881; aged 77; died, June 14.

Burton J. Dodge, Alma, Neb.; Keokuk (Iowa) Medical College, 1898; aged 59; died, July 8, of chronic nephritis.

Vernon B. Cosby, Maplewood, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1883; aged 80; died, July 14.

Joseph D. Cunningham, Fairfield, Mich. (licensed in Michigan in 1905); aged 84; died, July 12, of arteriosclerosis.

Adolphus A. Hicks, Muldrow, Okla.; Memphis (Tenn.) Hospital Medical College, 1899; aged 71; died, July 28.

William F. Flack, Knoxville, Tenn.; Knoxville Medical College, 1910; aged 51; died, July 8, of angina pectoris.

John W. Dalton, Dalton, Ark.; American Medical College, St. Louis, 1880; aged 80; died, July 24, of pneumonia.

Thomas W. Harper, Ruston, La.; Memphis (Tenn.) Hospital Medical College, 1892; aged 85; died, July 1.

W. A. Briggs, Memphis, Tenn. (licensed in Tennessee in 1909); aged 75; died, July 28, in Knoxville.

Daniel Hill Sneed, Normandy, Tenn. (licensed in Tennessee in 1910); aged 60; died, July 10.

T. George Burge, Judsonia, Ark. (licensed in Arkansas in 1903); aged 63; died, June 19.

Robert J. Ferguson, Carter, Tenn. (licensed in Tennessee in 1904); aged 70; died, July 11.

Cornelia E. Brown, New York; Columbus Medical College, 1887; aged 73; died in July.

Bureau of Investigation

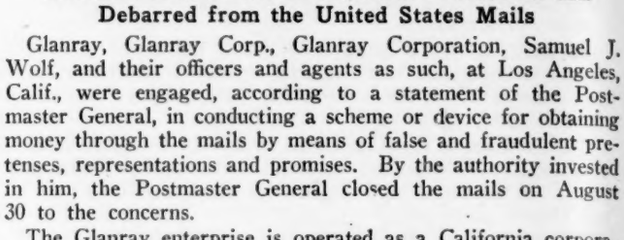
GLANRAY AND PROSTAL-RAY

Prostatic Gland Devices Declared Fraudulent and Debarred from the United States Mails

Glanray, Glanray Corp., Glanray Corporation, Samuel J. Wolf, and their officers and agents as such, at Los Angeles, Calif., were engaged, according to a statement of the Postmaster General, in conducting a scheme or device for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. By the authority invested in him, the Postmaster General closed the mails on August 30 to the concerns.

The Glanray enterprise is operated as a California corporation and was chartered in June 1934 with a reported capitalization of $25,000. The officers of the outfit consisted of S. J. Wolf, president, and Mrs. Sylvia B. Wolf, his wife, as vice president, secretary and treasurer. The business consists of promoting through the mails the sale of electrically heated, prong-like devices called "Glanray" and "Prostal-Ray" for so-called "prostate gland trouble."

Contact with prospective customers was made by means of advertisements inserted in publications having a national circulation. A specimen of the "come-on" bait is reproduced.


PROSTATE GLAND DEVICE Brings Results
Stop night rising, leg-back pains, nervousness, low vitality. Treat yourself at home. First cost is last. FREE BOOK.
GLANRAY CORP., DEPT. F, LOS ANGELES, CALIF.

Other advertisements, as quoted by the Post-Office fraud order, contained such implied promises and statements as:

"The Glanray automatically heats and massages the Prostate, helping nature to restore the gland to health! Naturally, when the prostate is back to normal, all the aches and pains caused by its inactivity disappear. Why suffer the misery of Prostate trouble when Glanray is guaranteed to help you or your money is returned? . . . Many doctors concede that heat massage is the proper treatment for prostate trouble."

The generic term "prostate trouble" is particularly objectionable, because it implies that all abnormal conditions of the prostate are the same and, therefore, respond to one line of therapy, namely, the Glanray and Prostal-Ray.

The victim of real or imaginary symptoms referable to the male perineum who succumbed to the "we-want-to-help-you-overcome-your-aches-and-pains" ballyhoo received, on remittance of $12, the Glanray apparatus, a hard, rubber, prong-like device four inches long, with a bulbous end some three-quarters of an inch thick and with a circular shield for regulating the depth of rectal insertion. Attachments consisted of an electrical cord with switch and sockets, and a ten watt red bulb for use as a gauge. A special lubricant, composed of 7.1 per cent aspirin in a petrolatum base, completed the equipment. If the prospective purchaser failed to warm to the $12 gadget, the company had a "simplified electrical device," that is, "if you have $4.85 in cash . . ."

The unhappy sufferer from any one of the innumerable conditions causing genito-urinary symptoms is led to believe from advertisements of the Glanray type that frequency of urination means only one condition—"prostatic trouble." The fact that frequency of urination is only a symptom of bladder irritability which may be brought about by an encyclopedic list of conditions, either of psychogenic or organic origin, is, of course, not brought to the attention of the prospective Glanray purchaser.

Especially unwarranted in the Glanray copy was the fear appeal:

"Are you face to face with an operation for *Prostate Gland?* Is the surgeon just around the corner? If you have the Prostate Gland cut out, will that make you as good as ever? *Operations* do not always cure. Ask any doctor if he will *guarantee* it . . . Glanray offers you a *knifeless, drugless,* simple *safe home* treatment for Prostate Gland

trouble. The entire cost of Glanray is only a mere fraction of the cost of a surgical operation. . . . We are convinced that you can give yourself a better massage with Glanray than a doctor can give you."

The bewildered patient who succumbed to the Glanray copy, "Danger Signals for Men," was not told by the callous promoter that stone in the bladder, carcinoma of the prostate, carcinoma of the bladder wall, tuberculosis of the bladder, ureter or prostate, contraction of the bladder neck, stricture of the urethra, nerve degeneration associated with cerebrospinal syphilis, were but a few of the pathologic conditions that may cause so-called "bladder weakness, mental despondency, leg, foot and back pains, night rising . . . irritability . . ." for which the Glanray device would be worthless.

The suggestion in the advertising that using the Glanray or Prostal-Ray devices would enable one to "avoid doctors' bills" would be dangerous advice to a person in the pre-cancer stage. The victim could as reasonably hope to "avoid doctors' bills" by postponing the period for radium, x-ray or surgery until too late.

Particularly untruthful was the statement: "There is no biological reason why a man should not maintain his mental and physical vigor to the ripe old age of seventy years or even more," it being implied that the device exploited by Wolf would "restore you to your old-time vigorous manhood."

For all the Prostal-Ray and Glanray blatant advertising copy, no witness, either expert or lay, testified on behalf of the respondents at the hearing, according to the Post Office Solicitor's report of the case.

The exploitation by periodical advertisements of such devices as the Glanray and Prostal-Ray is another example of the heartlessness of the commercially-minded. The postal authorities are to be commended for closing the United States mails to such devices as the Glanray and Prostal-Ray.

Correspondence

SERUM TREATMENT OF POLIOMYELITIS

To the Editor:—We have read the editorial on the serum treatment in poliomyelitis in the issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of August 8 with a great deal of interest. With certain of the points made in the editorial we are inclined to take issue.

In the first place, reference is made to "the almost universal observation of rapid symptomatic response with a drop in temperature and improvement in symptoms even with the small doses of serum in vogue at that time." We have never been impressed with this. We have seen quite as marked improvement in symptoms following a lumbar puncture. Indeed, we have not infrequently observed an exacerbation of symptoms after serum was given intraspinally.

Attention may be called to a typographical error in the paragraph referring to Dr. Park's statement. The fatality rate in the untreated cases was 0.9 per cent, not 9 per cent.

The editorial quotes from the report by the New York Academy of Medicine: "The untreated group was indeed a much milder group than the treated group. The results of the study are therefore inconclusive." To the inferences implied by this statement, we take most decided exception. When a patient is seen in the preparalytic stage, no prognosis can be made with regard to the ultimate severity of the case. Patients with a meningeal type who recover with no evidence of paralysis often appear severely ill at the onset. On the other hand, not infrequently patients with a mild onset develop severe paralysis as the disease progresses. To quote from Kramer, Aycock et al., "In a disease so unpredictable as poliomyelitis, where there is no single symptom or physical finding in the preparalytic stage to indicate the outcome, nothing short of an experiment with alternate series of cases would serve to establish the efficacy of convalescent serum. . . ." We are therefore unable to understand on what ground the workers in the Academy of Medicine group could have decided that the untreated cases were milder.

If we understand the conclusions of Kramer and Aycock correctly, their unwillingness to draw conclusions as to the efficacy of the serum was based on the relatively small number of patients studied by them. It seems to us that this objection has been overcome when the total number of cases reported in the study of 1931 is considered. This series comprised in all a total of more than 1,100 cases, nearly equally divided, and observed by three different groups of workers; namely, the Health Department of New York City, the Academy of Medicine and Kramer and Aycock. It seems to us that this number of cases is sufficiently large to warrant the drawing of a quite definite conclusion that the convalescent serum is of no value in the treatment of poliomyelitis.

It is to be noted that in the three recent favorable reports cited in the editorial by Jensen, Cowie and Levinson, there were no controls. This leaves their work in the same questionable position as the favorable reports published before 1931.

As regards the method of administration and the dosage, attention must be called to the fact that the reports have been equally favorable regardless of these two factors. For instance, in the eastern part of the United States and in Australia, large doses intraspinally and intravenously were used; in California, large doses intramuscularly; in Canada, small doses—from 20 to 25 cc.—intramuscularly. The results were always favorable.

Certainly, in view of these facts, those who are still unconvinced and who wish to continue the use of the serum should use it in alternate cases, and draw conclusions only from fairly large series.

WILLIAM H. PARK, M.D.
JOSEPHINE B. NEAL, M.D.
New York.

GARLIC ODOR TO BREATH

To the Editor:—Since you have published correspondence from Dr. Haggard (THE JOURNAL, September 12, p. 895) in which he criticizes the work of C. E. Richards and myself (THE JOURNAL, August 8, p. 409) in such a way as to leave the question of garlic breath odor in doubt, I wish you would publish this additional correspondence.

We have reread Dr. Haggard's report (THE JOURNAL, June 15, 1935, p. 2160) and his quotations from his work, and we believe that the conclusion at which he arrived from his experiments should be the same as he published; namely, that onion or garlic breath odors "arise solely from particles of onion or garlic retained in the structure about the mouth." If we appeared to be "anxious to throw discredit" on his work, it must be because of our understanding of the word "solely" as he used it. We disagree about his use of that word and we also disagree about his use of the word "wholly" in his recent correspondence. He ascribed to us a belief that breath odor comes wholly from the lungs. We made no such sweeping conclusion and we implied nothing more than was shown in our experiments; namely, that garlic breath odors do come from the lungs and that in the subjects used in our experiments these odors came only from the lungs. This we proved and Dr. Haggard, in his recent correspondence, conceded it in regard to garlic oil. Whether or not that concession is consistent with Dr. Haggard's use of the word "solely," I cannot tell from his writings. We have no doubt that when particles of garlic or onion are retained in the mouth, they give forth an odor.

Dr. Haggard criticized us for relying on the sense of smell rather than on chemical methods such as he used. Since the discussion concerns itself with garlic and onion odors, it would seem that the actual detection of these characteristic odors by the sense of smell is preferable to Dr. Haggard's chemical tests, which he admits are nonspecific. In his paper he not only admits that garlic odors are easily detectable at as low a

theoretical concentration of the oil in the breath as 0.00015 mg. per liter (the lowest recorded by him) but further advocates our method by making his "crucial" experiment by the detection of odor alone. In his recent correspondence, Dr. Haggard did not defend his chemical methods. On the contrary, he suggested that we do more experiments by the smell method. This, I take, is a concession that our experiments were not fundamentally bad because of the smell technic.

There remains, then, but one important point—that is, to convince Dr. Haggard and your readers that our feeding experiments were done with garlic and onion in amounts, as he says, "within reason" (quantity not stated). Let us, then, give this additional information. The food (soup and salads) was prepared by hospital dietitians in hospital kitchens, with one exception. In experiment 2 the subject with complete tracheal fistula went to a restaurant and ate "mixed vegetable salad including Bermunda onion and garlic." This salad was prepared by the proprietor. The subject came thence to our laboratory and said he relished his food—meanwhile blowing off garlic fumes from his tracheal fistula. This we feel is an amount "within reason" and so concludes the matter. We believe, as does Dr. Haggard, that when facts are clearly stated the matters of discredit and interpretation take care of themselves.

M. A. BLANKENHORN, M.D., Cincinnati.

INQUIRY ON THE "SAFE PERIOD," BY THE NATIONAL COMMITTEE ON MATERNAL HEALTH

To the Editor.—In line with our interest in "medical aspects of human fertility," we are impressed by the extensive and increasing interest in and reliance upon the so-called "safe period" as a means of contraception. There is urgent need for determining, as accurately as possible, whether there exists, for the regularly menstruating woman, a predictable and reliable moiety of her cycle in which fertilization is impossible. The National Committee on Maternal Health is undertaking to collect pertinent data which, by reason of their source, will be of exceptional value.

We seek to enlist specially qualified married couples who will scrupulously keep and transmit to us—confidentially, of course—accurate and complete records of menstruation and coitus over a long period of time, several years if possible. We suggest, though not exclusively, couples of whom one or both are, say, physicians or graduate students or faculty members or research workers in biologic or other scientific departments, therefore competent to furnish trustworthy records and also scientifically interested in contributing to this investigation.

A couple such as we wish to enlist would prefer not to have a pregnancy develop during the next year or more, although if one did develop it would not be calamitous. Accordingly, the couple would observe the so-called "safe periods" as their sole means of avoiding conception. If that succeeds, and then the time comes when they desire a child, they would reverse their practice, confining coitus to occasions outside the "safe period," or they would at least restrict intercourse to the moieties of the menstrual cycle when, theoretically, pregnancy is most likely to result, and then record how soon it does result. Needless to say, there must be no known or probable factor of involuntary sterility in either one of the couple.

The frankly experimental character of the coital practices on which these records are based, and the special qualifications of the recorders, will make these data uniquely valuable.

The committee is peculiarly fitted to collect these records. Its territory is large enough to encompass couples in number adequate for the investigation—couples who, by reason of their particular qualifications and their willingness to volunteer, must be few in any one community, no matter how large the latter may be.

On application, we shall distribute to individuals simple record forms and brief instructions easy to follow. We hope to hear from as many as possible who are reached, directly or indirectly, by this announcement. Please address National Committee on Maternal Health, Inc., New York Academy of Medicine Building, 2 East 103d Street, New York, N. Y.

RAYMOND SQUIER, M.D., New York.
Executive Secretary, National Committee on Maternal Health.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TOXIC NEPHRITIS FOLLOWING USE OF PICRIC ACID NASAL SPRAY

To the Editor:—Could the following cases be due to the picric acid alum spray described by Dr. Charles Armstrong or just coincidence? Case 1: A white boy, aged 12, one of seventeen living children, none dead, whose only illness since infancy was influenza about four years ago and a light case, on September 7, when perfectly well, was given a spray of picric acid-alum solution. He became nauseated but did not vomit. September 9, his mother noticed a slight swelling of the face and after the second spray on that day there was considerable nausea and by afternoon a generalized edema. September 10 there was difficulty in voiding, vertigo and marked fatigue. I saw him in the office on the morning of the tenth. The temperature was 100, pulse 108, respirations 28. Anasarca was present. The throat was slightly red. There were a few moist râles in both bases. The urine voided in the office had a smoky albumin color; albumin was three plus. It contained many red blood cells and many casts, mostly granular. September 12 the urine was much improved and the edema was less marked. Case 2: A Negro boy, aged 10, the second of six living children, none dead, was doctor treated for worms when 2 years old, and had never been sick since. September 7 he was sprayed and developed an intense pain in the epigastrium but did not vomit. On the 8th he felt fairly well but after spraying on the 9th the pain in the abdomen was much worse, with nausea but no vomiting. September 11 he was too sick to go back for spraying and anasarca was present. When I saw him September 17 there was a temperature of 101, with pulse 96. There was generalized edema. The throat and the heart were normal. There were a few moist râles in both bases. The urine voided in the office was about the same as in case 1. September 20 he had convulsions lasting about one and one-half hours. September 21 there was slight improvement with the urine showing less albumin, fewer red blood cells and not so many casts. Blood slides on both of these children were normal. There were no sores and nothing was present in the history except the spray that could, to my mind, account for the nephritis.

L. J. RUTLEDGE, M.D., McComb, Miss.

ANSWER.—The two cases described should certainly be considered examples of toxic nephritis induced by the picric acid-alum spray. The toxicity of picric acid, or trinitrophenol, has been subjected to experimental and clinical study since 1827. Internal administration for febrile conditions was attempted by Braconnet in 1830 but soon was shown to be too dangerous. The chief risk of picric acid poisoning has been in industry and particularly in munition manufacture. During the war the French found trinitrophenol but slightly less toxic than dinitrophenol. The grave dangers of internal administration of dinitrophenol need no further emphasis here.

The systemic effects of trinitrophenol are gastro-enteritis, hemorrhagic nephritis and acute hepatitis with hemolysis of the erythroplastids. Extensive absorption may cause yellow discoloration due to picric acid staining, but the acute hepatitis also causes a true icterus. These two children thus presented quite classic evidences of picric acid poisoning. In the second case the recurrence of symptoms promptly following a second spraying with picric acid-alum solution is particularly convincing of the etiologic association. The transient nature of the nephritis, which appeared to tend toward healing, speaks for a temporary poisoning rather than infection as the causative agent.

It is well known that the introduction of nitro groups into phenol compounds greatly increases their toxicity (Hamilton, Alice: Industrial Poisons in the United States, New York, Macmillan Company, 1925). The susceptibility to nitrate and

nitrite poisoning is much greater in children than in adults; instances of nitrite intoxication with methemoglobin formation are not unusual in small children from even small doses of nitrite-forming drugs. The greater vulnerability of children to nitrites may be a factor in making the nitrophenols, such as picric acid, relatively much more toxic to children than to adults. At least the probability of such additional danger suffices to warrant expressing an emphatic warning as to the dangers of possible picric acid absorption. Certainly it is not justified to advocate a method of prophylaxis of somewhat uncertain efficacy against a possible danger when such probable risk is involved.

INTRA-OCULAR PAIN

To the Editor:—A man, aged 29, developed bilateral intra-ocular pain at the age of 17, which has persisted constantly to the present. It is quite comparable to a toothache in nature and does not radiate. The intra-ocular pressure is normal and the patient has worn glasses since the age of 15 for simple myopia. There seems to be acute exacerbations at times in which the pain increases in severity and in addition there is mental depression with loss of ambition. The patient, I might add, is quite intelligent and a college graduate. The acute attacks remit after a few weeks and recur within five or six months. From general appearances, one would not suspect that there is any complaint. Competent neurologists, ophthalmologists, otolaryngologists and internists have not been able to find a pathologic basis for this complaint. The sphenopalatine ganglion and nasal mucosa have been cocainized with no effect. Most men have considered this a psychoneurosis and psychoanalysis has been advised, but the patient does not feel that such an expense would be justified. Please omit name.

M.D., Connecticut.

ANSWER.—The sources of intra-ocular pain in the absence of manifest inflammation are so varied that it is extremely difficult to answer this question. One of the most prolific sources of such pain is an anomaly of the muscular apparatus of the eye. Such a condition can be discovered on competent ophthalmic examination and corrected without great difficulty. Another not infrequent source of intra-ocular pain is a low grade chronic inflammation of the posterior paranasal sinuses. This may be somewhat difficult to diagnose and may require repeated examinations of the sinuses with radiopaque material.

RECURRENT FEVER IN CHILD

To the Editor:—I have recently seen a girl, aged 14, with a history of recurrent attacks of fever since childhood. When she was 3 years of age she had the first recognized attack, which lasted about three weeks. Her mother states that there was no complaint or objective symptoms except weakness and fever. Since that time she has had attacks varying from weekly intervals to bi-yearly intervals and varying little from the first attack, except that recently the attacks have been of shorter duration. She has had measles, mumps and chickenpox. There is no record of rheumatic fever or scarlet fever. She had pneumonia (lobar) and was treated with antipneumococcic serum, which shortened the disease very much. This occurred in 1933. I saw her first in October 1935, when the temperature range on five successive days at maximum was 99, 100, 101.5, 102 and 99 F. Thorough physical examination gave no lead, and because of the history of weakness I did a Mantoux test, which was entirely negative. Her appetite remained good throughout the fever period, and two days after a normal was reached she was up and returned to school. March 4, 1936, she began to have fever again, and on six successive days it was 99, 99.5, 102, 100, 99.8 and 99. The pulse is usually between 80 and 90 with fever. Her hemoglobin is 84 per cent, red blood cells 4,300,000 and leukocyte count 7,600, with a normal differential. The urine is normal. She has been carefully observed and taken to specialists, but no definite diagnosis has ever been made. I have kept tuberculosis in mind and have thought of various other conditions, such as undulant fever, intestinal parasites and even endocrine disturbances, but I cannot find evidence to support any definite diagnosis. Could you suggest any diagnostic possibility? Please omit name.

M.D. New York.

ANSWER.—It is obviously difficult to determine the precise cause of the obscure fever from which the patient mentioned is suffering. The causes for these obscure fevers are numerous and one should repeat some of the examinations already made. It would be well to ascertain the condition of the child's tonsils, to determine if they were the site of chronic infection. One should also note whether or not there is enlargement of the cervical or other lymph nodes.

An x-ray examination of the thorax should be made to visualize the condition of the lungs and the bronchial and mediastinal glands, as well as the size and shape of the heart. Pulmonary tuberculosis may be detected by the presence of a primary lesion in the lung or by enlargement of the bronchial lymph nodes. The tuberculin skin test should be repeated and, for the purpose of completeness, a Wassermann test should also be made. An agglutination test for undulant fever should be employed. Morning specimens of urine should be obtained at frequent intervals and examined chemically and particularly microscopically for pus cells. If a sterile specimen of urine can be obtained, it should be examined for micro-organisms. If there is any suspicion of kidney involvement, intravenous or oral urography, as suggested by Swick, may be tried in order to visualize the kidney by means of a pyelogram. The abdomen also should be investigated, particularly the size and position of the liver and spleen, and the region of the appendix should be examined for tenderness and rigidity. The fecal evacuations should be examined for the presence of pus, mucus, occult blood, parasites and their eggs, as well as for amebas, and bacteriologic studies of the stool may also be carried out. It must not be forgotten that in some patients all these tests may be negative and the child may present variations in temperature owing to an unstable heat regulating mechanism. Sometimes emotional excitement, fright and fear, as well as excessive muscular exercise may cause temperature elevations of varying degree.

ALKALINIZATION IN ULCER THERAPY—IODIDES IN TUBERCULOSIS

To the Editor:—Recently I saw a patient who, while suffering from a gastric ulcer, took over a long period of time large quantities of mixed alkalis, including sodium bicarbonate. He then developed uremia, having marked clinical symptoms and a blood nonprotein nitrogen of 111, urea nitrogen 65, creatinine 3.7. The specific gravity of the urine was fixed at 1.010 and there was a trace of albumin, the reaction being alkaline. The blood pressure was never above 160/80 and during the stage of coma fell to 100/40. The patient has made a remarkable recovery, now having a normal blood nonprotein nitrogen, the urine is free from albumin, and the specific gravity has reached 1.018. The question is Did the alkalosis have anything to do with the production of uremia? If so, will you please explain the manner in which it acted? Is permanent damage likely to have resulted? The prevailing opinion seems to be that potassium iodide is detrimental to a tuberculous person. Is this due to the potassium or the iodine? If due to the iodine, do all the iodides have a detrimental effect when given in moderate doses. Please do not mention my name or town.

M.D., Oklahoma.

ANSWER.—One of the objections to the method of treatment of peptic ulcer by accurate neutralization of the hydrochloric acid is the fact that alkalosis may occur. This is manifested by an elevation of the blood carbonates and symptoms of renal irritation. It has been shown by many observers that not alone renal disease but any lesion of the genito-urinary tract may be aggravated by excessive alkali therapy. Fortunately most of these conditions are transitory and improve with cessation of alkali therapy. Occasionally it may be necessary to administer some form of acid medication, as ammonium chloride or even hydrochloric acid, to overcome what seems to be a disturbance in the composition of the colloids of the cells.

Iodides in any form are contraindicated in patients with pulmonary tuberculosis.

CLIMATIC CARE OF INFECTIOUS ARTHRITIS—ARTHRITIS AND PREGNANCY

To the Editor:—I am anxious to determine whether or not there are any places in the world relatively free from infectious arthritis. In attempting to look this matter up I find that the literature is vague. My wife has a relatively mild bronchiectasis in the right lower lobe of about ten years' duration. On postural drainage, about a tablespoonful of sputum is raised daily with no blood. A year ago she first developed an infectious arthritis in the fingers of the right hand and right wrist. The pain and swelling subsided during the spring and summer. During the past month the condition has recurred in the wrists and right index finger. She is about six months pregnant. What effect, if any, does mecholyl have on pregnancy? Could you advise me as to whether or not climatic conditions in any part of the world would offer enough to be considered in making our future locations? Do you have any therapy to suggest? Please withhold name.

M.D., Indiana.

ANSWER.—The incidence of arthritis occurring among the natives of areas in which the climatic conditions are usually warm and dry and there is an abundance of sunshine has been shown to be lower than in sections of the globe where there is greater humidity and less sunlight. The migration of individuals suffering from arthritis to the dry, warm areas increases the census of such patients in these localities. Also patients suffering from bronchiectasis are benefited by climates in which the humidity is low. A connection between a mild bronchiectasis and symptoms of arthritis has been postulated but not definitely established. In this country the climate of Arizona and New Mexico seems to offer the best advantages for these patients. Unfortunately, in most cases, residence in such climates affords relief only while the patients are there, and return to a climate in which there is colder weather, greater humidity and less sunshine frequently leads to a relapse and an exacerbation of all of the symptoms.

There is no evidence that mecholyl (acetyl-beta-methylcholine chloride) has any deleterious effect on pregnancy, but the various physiologic effects of this drug are still being studied.

Pregnancy in itself adds a strain on the calcium and phosphorus stores of the body. Within recent months there has

been increasing evidence that calcium and phosphorus deficiencies may in some instances predispose to the development of arthritis. It is possible that the onset of this last attack of arthritis when the patient was five months pregnant has a significant connection. Both because of the pregnancy and of the arthritis, one would seem justified in recommending a rather large intake of vitamin D and of calcium in the form of from 1.3 to 2 Gm. of calcium lactate daily, in addition to a permanent change of residence to a more suitable climate.

REACTIVE CHEST APPLICATION

To the Editor:—By what means do the "reactive" chest applications, as mentioned in the article on therapy of coughs in THE JOURNAL, February 1, act? I can see how there might be a momentary reaction due to the temperature of 60 degrees. But how can any other reaction occur after the compress is on for more than a few moments, as in the case of the ambulant patient who leaves it on all night? Surely the skin temperature is reached in a very short time. If a reaction is desired and beneficial, why would it not be better to change the compress every ten or fifteen minutes in the care of the bed patient rather than in two or three hours? Earlier in the article the author states that "chilling of any part of the skin, more especially of the chest, causes bronchitis patients to cough more." In my experience cold compresses to the upper part of the chest frequently work like a charm in stopping a cough in children with acute bronchitis when the cough is "tight." Textbooks and medical literature are at such a variance with regard to the use of warm and cold compresses in chest conditions that one wonders whether we are all wrong. Please omit name and address.

M.D., Minnesota.

ANSWER.—A reactive "chest application" consists of a well wrung-out cold compress covered with dry flannel so that the edges of the latter liberally overlap the moist fabric. It is usually applied at bedtime just before the patient enters his previously warmed bed. If the compress is properly employed, the momentary constriction of the blood vessels of the chest is followed by a hyperemia lasting for hours; and the compress should be dry by morning. It is then well to apply a "reactive chest ablution," which is nothing more nor less than a dash or two of cold water applied to the chest followed by brisk rubbing and drying so as to leave the skin of the chest in a glow of hyperemia. It is not the vasoconstrictive action of the cold but the hyperemia reaction from it that is aimed at in this treatment. If the patient does not "react" by feeling warm and comfortable and if the compress feels cold and clammy and chills the patient for more than the very brief initial shock, it does harm and should be promptly discontinued.

INDUSTRIAL HAZARD OF SODIUM SULFATE DUST

To the Editor:—For a number of years the so-called salt cake or crude sodium sulfate has been imported through Gulfport, Miss. For the past ten or twelve years I have done the major portion of the accident work on the shipping front. It is only within the last few months that any one has complained of experiencing any bad effect from the inhalation of salt cake dust, and these complaints came during an epidemic of influenza among the strike breakers, who were later let out. Since that time, work on the water front has been limited and every now and then some one complains of suffering bad results from this cause, especially when he knows that shipping will be scarce for a few weeks. Will you kindly advise me if there are any statistics showing that a few hours work at a time inhaling this dust will have a damaging effect on the human lung? One man claims to have developed tuberculosis as a result of exposure. As this material contains some sulfuric acid, unless too strong, I would rather think it a pulmonary antiseptic rather than an irritant. Kindly give me your opinion at your earliest convenience. Please omit name.

M.D., Mississippi.

ANSWER.—Sodium Sulfate (Na_2SO_4) is well known to medicine in the form of Glauber's salt ($Na_2SO_4 10H_2O$), which is the hydrated sodium sulfate. Large doses, such as 30 Gm., are frequently administered, which fact at once marks this substance as essentially free from toxicity. In various portions of the United States and in other portions of the world, sodium sulfate is mined as such. No events have taken place indicating toxic properties arising from the inhalation of sodium sulfate dust. In addition to the natural product, sodium sulfate may be manufactured. In the Leblanc process of manufacturing soda, sodium sulfate is first made by treating common salt with sulfuric acid. This yields "niter cake," sodium acid sulfate (NaHSO). Later this niter cake is changed over to the "salt cake" through further contact with brine.

In the manipulation of both the natural and the manufactured product, opportunity for exposure to dust is provided. At no time have any injuries been noted from the action of this salt. In the manufacture of sodium sulfate, qpportunities for possible harm arise from exposure to the fumes of sulfuric and hydrochloric acid in connection with furnace operations. In some manufacturing processes leading to sodium sulfate, sulfur dioxide may arise and occasionally hydrogen sulfide is produced. However, it is emphasized that these exposures are not to sodium sulfate itself but to intermediate chemicals and by-products incidental to its manufacture.

It is conceivable that some sulfuric acid might be present in uncombined form along with the sodium sulfate, but if so this would serve chiefly as a minor irritant to the skin and to the mucous membranes. In general it may be believed that sodium sulfate is one of the most innocent of industrially used chemicals. The repeated reference in the query to labor difficulties, strikes and shortage of work probably stands in relation to claims for damages associated with this salt as the cause. It is high time that the public should realize that not all dusts are harmful. The chances that sodium sulfate may have been responsible for any substantial injuries under the circumstances described are remote.

FETUS PAPYRACEUS

To the Editor:—A mother has been anemic and edematous, with a heart lesion. A full term girl was born who was perfect in every respect. Within the sac of fluid there was a 4 months old fetus flattened by pressure from the full term child. There was a small placenta within the sac leading to the fetus. Delivery was made after three hours of labor with rather profuse hemorrhage. The condition today is good.

M.D., Ohio.

ANSWER.—The case described is unusual and occurs generally in twin pregnancies but also may be found in cases of triplet gestations. In the case cited, the patient's anemia and heart condition most likely had no etiologic significance. The condition is usually associated with dichorionic or double ovum twins when one fetus dies during the early months of gestation. Instead of being expelled it remains in the uterus, where it and its placenta are compressed against the uterine wall by the normally growing child. The liquor amnii of this sac is absorbed or expelled. The dead, flattened fetus is called fetus papyraceus or fetus compressus. Occasionally such a fetus is unknowingly left behind in the uterus after delivery of the live child and if this occurs it may give rise to puerperal infection. The placenta of a fetus papyraceus is small, hard and pale and may be separate from or contiguous with the placenta of the normal child.

SEBORRHEIC DERMATITIS

To the Editor:—I have a patient who has an oily, crusted dermatitis of the skin of her neck and face. She has been treated by a skin specialist, who made the diagnosis of seborrhea due to dandruff sensitivity. She has not responded to various sulfur preparations that he has prescribed and the dermatitis continues to return after short remissions. Please advise treatment. Could an extract of the dandruff be made to desensitize the patient? Please omit name.

M.D., North Carolina.

ANSWER.—In a person with seborrheic dermatitis there is apt to develop a superimposed dermatitis from exposure to cutaneous irritants. Frequently it is found that what is thought to be a recurrence of seborrheic dermatitis is in fact rather a flare up of irritant dermatitis on a seborrheic habitus. It is usually due to the action of an irritant to which the person is sensitive. In a woman with a dermatitis confined to the face and neck, the cause should be sought in materials to which she is exposed such as toilet articles or fur collars. Frequently a good history brought out by pointed questioning will suffice to identify the exciting agent. If not, recourse must be had to patch tests done in a routine manner with the substances that are in contact with her face.

Uncomplicated seborrheic dermatitis usually yields readily to topical treatment, although there is some tendency to recurrence. It is generally thought that impaired health with constipation and other gastro-intestinal disturbances, anemia, and other conditions predispose to seborrheic dermatitis, but the experience is that it is seen constantly in persons with normal health. Recently there has been some evidence from one source to indicate that Pityrosporon ovale may be the etiologic agent.

It is well to have patients with seborrheic dermatitis avoid the things that are likely to flush the face—alcoholic liquors, hot and spicy foods, or hot towels to the face. For all practical purposes topical applications with sulfur seem to be the most useful, alone or combined with salicylic acid. Suitable formulas are given in all textbooks of dermatology. Sometimes a few exposures to x-rays are necessary, and ordinarily with this regimen the dermatitis can be readily got rid of. Treatment with an extract made of the dandruff scales is not commonly practiced, and there has not been sufficient experience on which to evaluate it.

AMENORRHEA, DYSMENORRHEA AND CERVICAL STENOSIS

To the Editor:—Mrs. M., aged 23, first came to me two years ago complaining of amenorrhea and severe dysmenorrhea dating from six months previously. She began menstruating at the age of 16, was always regular, and had a moderate flow lasting from four to five days. Her past history was otherwise negative. The patient was thin, had small bones, was 5 feet 5 inches (165 cm.) tall and weighed 102 pounds (46 Kg.). Aside from the underweight no other abnormalities were noted until examination of the genital tract. This showed a third degree retrodisplacement of the uterus with a pinhole external os. There was no cervical or vaginal discharge and no erosion of the cervix. The uterus was freely movable and not tender. There was no tenderness nor were masses palpable in either fornix. In view of this and after pessaries had failed in the treatment of the displacement, an operation at which a suspension of the uterus and dilation of the cervix would be done was advised and performed. No curettage was thought best by the surgeon. A glass rod was left in the cervical canal, but the pain was so severe that it had to be removed on the fourth day. This procedure gave some slight relief from the dysmenorrhea for the next three periods but had no effect on the amenorrhea. Since her trouble had its onset at about the time she had become engaged to be married, one physician felt that there might be some sexual background to her difficulties and therefore advised her to be married. This was also done, but with no effect. Since that time I have given her gland products intramuscularly as follows: for the first ten days following her period, 1 cc. of theelin on alternate days. For the remainder of the intermenstrual period, 1 cc. of antuitrin-S. This resulted in no improvement. During the next intermenstrual period she received, beginning two weeks before the next period was due, 0.5 cc. of follutein plus 3 cc. of anterior pituitary (Squibb) on alternate days. No improvement was noted. The only drug that gives her any relief from the dysmenorrhea, with the exception of narcotics, which I have refrained from giving, is ortal sodium. She has been slightly anemic at times but has always responded to treatment for this. I have not succeeded in getting her to gain any weight. I have thought that she might become pregnant and that this might solve the difficulty, but she has not. Any advice you may give me with regard to this case will be greatly appreciated. Please omit name and town.

M.D., Connecticut.

ANSWER.—The apparently paradoxical combination of amenorrhea and dysmenorrhea at once suggests stenosis of the cervix. Since the cervix has been dilated this possibility can be almost ruled out, but the possibility of a foreign body in the uterus has not been ruled out. Presumably the patient still has cyclic monthly pain but does not menstruate. She should have a basal metabolic rate determination, since low rates may be accompanied by amenorrhea, more rarely by dysmenorrhea. Even if the rate is not low, say plus 5, small doses of thyroid substance (from 0.03 to 0.065 Gm. daily) are worth a trial. The combination of cervical stenosis, retroversion and acquired dysmenorrhea strongly suggests endometriosis. Endometrial implants observed when the uterus was suspended, or increasing nodules in the culdesac at present, would almost assure the diagnosis. Dysmenorrhea due to endometriosis will not be relieved by endocrine therapy unless amenorrhea is produced. Pituitary disorders, including Simmonds' disease, should be considered. If a diagnosis of definite organic or dysfunctional disease cannot be reached, the patient should be encouraged to become pregnant in hope that the ensuing dilatation will be beneficial. Sterility studies may be necessary. Hertzler believes that small doses of potassium iodide are almost specific for dysmenorrhea; atropine sulfate, from 0.4 to 0.6 mg., may be used two or three times a day just preceding the period.

PREPARATION OF POLLEN ANTIGENS

To the Editor:—Please send me the detailed technic for the extraction of pollen, foods and epidermals. What is the best extracting fluid to use? Approximately how long do these extracted fluids remain potent? Please give the detailed technic for extraction of house dust. What is the technic for dialysis? In the preparation of which materials is this method used? Please send me any references that will be of value to me. Kindly omit name.

M.D., Ohio.

ANSWER.—The details for extracting pollens, foods and epidermals are given in New and Nonofficial Remedies in the section on Allergenic Protein Preparations. For pollen extracts the 5 per cent solution of dextrose, which is isotonic, is recommended. It must contain 0.5 per cent phenol as a preservative. For foods and epidermals, a solution containing 50 per cent glycerin and 50 per cent of a solution containing 5 Gm. of sodium chloride and 2.7 Gm. of sodium bicarbonate per liter is recommended for the extraction. Extracts containing 50 per cent should be diluted with the sodium chloride-sodium bicarbonate solution before injection. These dilutions probably retain their potency for about thirty days if kept in the refrigerator. The glycerin extracts and the pollen extracts prepared with 5 per cent dextrose solution appear to retain their potency for at least eighteen months.

House dust may be extracted with the glycerin in salt solution mixture, about 20 Gm. of the material removed with the vacuum sweeper from the patient's home being used. The dust is macerated with 100 cc. of the solution over night, and the liquid is pressed out with glass rods and filtered.

Neither the use of 50 per cent glycerin nor the use of 0.5 per cent phenol as a preservative will kill bacterial spores, and it is necessary that all allergenic extracts be sterilized by passing them through Berkefeld, Seitz or Pasteur-Chamberland filters. The filter and all equipment must be sterile and must be adequately protected against the bacteria of the air.

All solutions used for either skin testing or treatment must be of proved sterility when tested according to the method described on page 469 of the U. S. P. XI.

Extracts of foods are freed from irritating dialyzable components by dialyzing against large quantities of distilled water, vegetable parchment or "Visking" sausage casings being used.

SIMULTANEOUS ADMINISTRATION OF ERYTHROL TETRANITRATE AND POTASSIUM THIOCYANATE

To the Editor:—Is there any incompatibility involved in using erythrol tetranitrate and potassium thiocyanate simultaneously, i. e., in the same patient? Is potassium thiocyanate injurious to a patient with chronic nephritis? Please omit name.

M.D., Massachusetts.

ANSWER.—There is no therapeutic incompatibility; but it would not be wise to administer the two simultaneously until after the optimal dose of each has been determined. It might then be well to see whether their administration alongside each other improves the result obtainable from either. The precautions required in the administration of thiocyanate are so well given by Barker (The Blood Cyanates in the Treatment of Hypertension, THE JOURNAL, March 7, p. 762) that it is best to refer to this article. Nephritis is no contraindication to thiocyanate but an indication for especially guarded dosage.

TREATMENT OF IMPOTENCE

To the Editor:—A man, aged 60, in excellent health, has always had a normal sex life. There is no venereal history. One testicle has been atrophied since the time he had mumps in adolescence, without effect on his sexual activity. About one year ago he began to lose the ability to attain an erection when attempting intercourse, except on rare occasions. Whenever erection is attained intercourse is normal, with orgasm and ejaculation neither hurried nor delayed. His libido is unquestionably decreased. A peculiar thing about his weakness is that the patient awakens almost every morning about 4 or 5 o'clock with a perfect erection, which is maintained without effort for from twenty minutes to a half hour. If the opportunity offers, intercourse is normal. He may often arise and go about his toilet without sexual ideas or thoughts and the erection persists for fifteen or twenty minutes, when it slowly subsides. It appears to have no relation to a full bladder, as the patient frequently will empty the bladder and return to bed and in an hour or so the erection will occur. Also when contemplating intercourse a full bladder is a distinct disadvantage and he is sometimes able to accomplish an erection after emptying the bladder. Is this a usual condition and is it related to age? Is the condition simply senile or is it psychic or emotional? What would you suggest in the care of this case? Of course, I appreciate that this is not a life and death matter, but it is distinctly annoying and as such merits a doctor's best efforts. Have the new testis hormones proved of any value and what may be expected of them in patients between the ages of 60 and 70? I refer to the crystalline principle isolated by the Swiss as well as such products as androstin. Has any work been done on testicular grafting by the method of Dr. Stone of Johns Hopkins in grafting thyroids and parathyroids by first acclimating the graft to the tissues of the recipient by growing them on the tissue juices, serum and plasma of the recipient before transferring the gland to its new host? What results have been attained? Please omit name.

M.D., California.

ANSWER.—It is not unusual for a man past 60 to find that his sexual ability is getting weaker, although with proper treatment it should become normal for his age. Morning erections are a good sign and the opportunity should be utilized for sexual intercourse if possible. There is no advantage of holding back from intercourse when sexually excited on the theory of conserving the sexual power. Morning erections with or without a distended bladder are not uncommon in both normal and partially impotent persons. From the history it seems that there is a mild priapism present in connection with the partial impotence, a not unusual combination. These mild cases of priapism generally go on to recovery but the blood should be examined nevertheless for the possibility of a leukemia.

Testicular extracts have no effect in cases of impotence for the simple reason that, while the testicle makes the hormone, it does not store it but sends it at once into the blood, so that a piece of testicle will have too minute a quantity of hormone

to be of any use. There have been a few good results observed after testicular transplantation, but the cases are few and the results as a rule only temporary. It certainly is not necessary to go through such a formidable operation in the present case, in which a certain amount of ability is undoubtedly present.

The condition in the present case is no doubt due to a weakened condition of the sexual muscles, and stimulation of these muscles is in order. For this purpose the use of the sinusoidal-faradic current of moderate rapidity and as strong as the patient can bear without any pain is most effective. One cable is connected with a rectal electrode and the other with a wet-sponge electrode applied to the perineum and the current is allowed to pass for about ten minutes. Treatments may be given every three or four days. An outdoor life with periods of vacations is distinctly beneficial.

LOCALIZED BONE ATROPHY

To the Editor:—An Irish housemaid, aged 21, was referred to me for roentgen irradiation of the left elbow because of pain, swelling, slight redness and limitation of motion of several weeks' duration. There was no recent trauma. About six years ago, while in Ireland, she sustained an injury to her left knee and also probably the elbow. She was not disabled and recovered promptly as far as the elbow was concerned. During the next five years she thinks she hurt her left elbow on several occasions when her left knee gave way and she either fell or tried to keep from falling. Otherwise she has always been well up to her present trouble. Roentgen examination disclosed a marked irregularity in the contour of the external condyle of the humerus, numerous circular clearly defined areas of osteoporosis in the condyle which perforate the cortex, and similar areas in the head of the radius and olecronon process. The joint space is narrowed. No periarticular soft tissue swelling and no osteosclerosis of bone are present. A biopsy by an eminent pathologist disclosed extensive necrosis (partial and complete) of rather compact bone, which in places was being revascularized. The diagnosis was posttraumatic necrosis with porotification, due to revascularization. A series of diathermy treatments was given and another film just taken shows the areas to be filling in with new bone. I should like to know your opinion as to etiology, pathology and references to similar cases if any are on record. Please omit name. M.D., New York.

ANSWER.—The patient apparently has localized bone atrophy, of traumatic origin, involving the elbow, and possibly traumatic arthritis. The injury to the knee, six years ago, probably resulted in a loose or fractured semilunar cartilage, which would account for the knee giving way. The repeated injury to the elbow occurring in the course of the falls may account for the changes in the joints and for the osteoporosis. The irregularity of the external condyle is probably the result of an unrecognized fracture, which occurred at the time of the original injury. The roentgenologic and clinical observations substantiate the opinion that an atrophic condition is present. The following references may be of interest:

Key, J. A.: Bone Atrophy and Absorption, *Internat. J. Orthodontia* **15**: 949 (Aug.) 1929.

Key, J. A.; Elzinga, Eugene, and Fischer, Frederick: Local Atrophy of Bone: I. Effect of Immobilization and of Operative Procedures, *Arch. Surg.* **28**: 936 (May) 1934; II. Effect of Local Heat, Massage and Therapeutic Exercise, ibid. **28**: 943 (May) 1934.

Middleton, D. S., and Bruce, John: Post-Traumatic Osteodystrophy at Joints, Edinburgh M. J. **41**: 49 (May) 1934.

Grey, E. G., and Carr, Gladys L.: An Experimental Study of the Factors Responsible for Noninfectious Bone Atrophy, *Bull. Johns Hopkins Hosp.* **26**: 381 (Nov.) 1915.

Sudeck, P.: Ueber die akute (reflektorische) Knochenatrophie nach Entzündungen und Verletzungen an den Extremitäten und ihre klinischen Erscheinungen, *Fortschr. a. d. Geb. d. Röntgenstrahlen* **5**: 277, 1901-1902; Ueber die akute (trophoneurotische) Knochenatrophie nach Entzündungen und Traumen der Extremitäten, *Deutsch. med. Wchnschr.* **28**: 336, 1902.

Herrmann, L. G.: The Diagnosis and Treatment of Post-Traumatic Painful Osteoporosis, *Internat. J. Med. & Surg.* **47**: 510 (Dec.) 1934.

Gurd, F. B.: Post-Traumatic Acute Bone Atrophy (Sudeck's Atrophy), *Ann. Surg.* **99**: 449 (March) 1934.

KRUEGER'S METHOD FOR BACTERIAL ANTIGENS

To the Editor:—Please send me Dr. Krueger's method of preparing bacterial antigens. In this particular method Dr. Krueger explains how he preserves the antigen without the aid of heat, chemicals or any biologic treatment. AUBREY L. LEWIS, M.D., San Angelo, Texas.

ANSWER.—Krueger's method (Krueger, A. P.: A Method for the Preparation of Bacterial Antigens, *J. Infect. Dis.* **53**:237 [Sept.-Oct.] 1933) follows: "Mass cultures of bacteria are grown in Blake flasks on appropriate mediums. The cells are harvested in buffered isotonic solutions and are washed five or six times. After the final centrifugation they are suspended in the buffered solution, and the cell count is determined by the centrifuge sediment method described in an earlier paper (*J. General Physiol.* **13**:553 [May] 1930). The dense suspension is placed in the mechanical grinder (Krueger, A. P.: *J. Infect. Dis.* **53**:185 [Sept.-Oct.] 1933) and is subjected to the grinding treatment for a period of ten or twelve hours. The suspension is then filtered through a 4.5 or 5 per cent acetic-collodion membrane (Krueger, A. P., and Ritter, R. C.: *J. Gen. Physiol.* **13**:409 [March] 1930) and is tested for sterility. It has been found that under ordinary conditions ultrafilters are distinctly preferable to Chamberland or Berkefeld candles, since the latter adsorb a considerable fraction of the active antigenic substances from solution. The procedure involves no treatment with heat, nor is there any possibility of denaturation by the action of chemicals."

THROMBOPHLEBITIS WITH INDURATION

To the Editor:—A man, aged 40, has a small brownish area on the inner side of the ankle just above the malleolus. This is slightly indurated at times underneath and again at times almost goes away. He states that there is no pain about it, but sometimes the induration extends through an area about the size of a silver dollar (38 mm.). The skin over this area is slightly brownish but is not scaly. There is no sign of ulceration. Ten years ago the patient had a phlebitis in this leg and states that at times the leg has been slightly swollen since then, and again there will be no swelling to amount to anything for months. The patient has no other trouble of any kind. What treatment would you advise for this? I presume there are some deep veins about this center but there are no varicose veins in this leg—at least none of any consequence. W.

ANSWER.—The condition described is a thrombophlebitic induration with a "resting" infection that occasionally becomes activated. All possible foci of infection should be searched for and eliminated. Teeth, tonsils and prostate are most important. Syphilitic etiology should be excluded. If the phlebitis followed an operation, the source of infection may be in infected pelvic veins. Small doses of x-rays not exceeding 100 roentgens with deep filtration are often helpful in softening the indurated area and clearing up the residual infection. Elastic support in the form of a zinc-gelatin boot or elastic adhesive tape reduces the swelling and also helps to soften the induration. Such indurated areas tend to break down with advancing age and form the base of intractable ulcers.

PSEUDOCOLLOID OF THE LIPS

To the Editor:—I have a patient with a condition of the lips which appears to be Fordyce's disease (pseudocolloid of the lips). I have been unable to find anything definite for the treatment of this condition and would appreciate any information you can give me with regard to the etiology, treatment and prognosis. Would radium or x-rays be of any value here? Please omit name. M.D., Minnesota.

ANSWER.—The lesions in pseudocolloid of the lips are most probably due to the presence of aberrant sebaceous glands in the buccal mucosa. The condition is a harmless one. The discovery is usually accidental and the condition, as a rule, does not give rise to any discomfort or symptoms.

The lesions may be destroyed with the cautery point, or x-rays or radium may be used cautiously to secure involution. Freezing of the parts with carbon dioxide snow is also of value.

MYDRIATIC FOR EYEGROUND EXAMINATIONS

To the Editor:—What single mydriatic preparation is most practical for eyeground examination in the office? What is the best after-care to give these patients, especially those who insist on driving their automobiles from the office? Please omit name. M.D., Wisconsin.

ANSWER.—Probably the most satisfactory single mydriatic for eyeground examination in which the paralysis of accommodation does not enter is 2 per cent eucatropine (euphthalmine). Two instillations at five minute intervals will produce adequate dilatation of the pupil in about fifteen minutes. If accommodation is not interfered with, the eye under euphthalmine does not suffer any noticeable deterioration of vision. But, as a preventive against possible attacks of hypertension, it is well to instil two drops of 2 per cent pilocarpine at five minute intervals into the eye before the patient leaves the office.

HYPOSPADIAS AND STERILITY

To the Editor:—To what extent is a hypospadias with the opening at the base of the glans considered an impediment to impregnation? In a case in question there have been no other abnormalities found in husband or wife that would account for their failure to have children in twelve years of married life, and it does not seem to me that the condition mentioned would be of much hindrance to the proper depositing of semen. If published, please omit name. M.D., Kentucky.

ANSWER.—Hypospadias of the first degree is rarely, if ever, an impediment to impregnation.

LENGTH OF USE OF ARTIFICIAL EYE

To the Editor:—I have a request from an attorney representing an insurance company as to the average usefulness of an artificial eye. In my own experience this is a very variable matter and depends principally on the care given the eye and the sensitivity of the individual, to roughness and the matter of appearance, and so on. I have never run across any reference to this in ophthalmic literature and would be very grateful if you can help me answer this question.

GEORGE N. HOSFORD, M.D., San Francisco.

ANSWER.—The average life of an artificial eye depends on many conditions. Of course, the care to which the owner subjects the eye when it is not being worn plays a part, but in addition to that there are secretions from the eye which vary greatly in character. In some individuals these secretions attack the prosthesis so that the eye becomes roughened and even eroded in from six to twelve months. In other individuals that effect is entirely lacking.

A rather exhaustive treatise on artificial eyes may be found in the American Encyclopedia of Ophthalmology, volume I, page 621.

MANDELIC ACID IN PYELITIS

To the Editor:—Recently I saw an article by Dr. Helmholz of Rochester, Minn., giving a new drug for the treatment of pyelitis. The article has been mislaid. Can you give me the information as to the drug or where I can find the reprint?

GEORGE J. ASTE, M.D., Chicago.

ANSWER.—The new drug used in the treatment of pyelitis is mandelic acid, which can be used in the form of the ammonium salt in the dose of 3 Gm. four times a day. If the sodium salt is used, it is given in the same dose with 1 Gm. of ammonium nitrate or ammonium chloride four times a day to acidify the urine. The p_H of the urine must be below 5.5, and the concentration of the acid about 0.5 per cent. This dose is for adults.

References:

Helmholz, H. F.: Successful Treatment by Means of Mandelic Acid of a Child with Urinary Stasis and Infection, *Proc. Staff Meet., Mayo Clin.* **2**: 231-232 (April 8) 1936.

Helmholz, H. F., and Osterberg, A. E.: The Rate of Excretion and Bactericidal Power of Mandelic Acid in the Urine, *Proc. Staff Meet., Mayo Clin.* **2**: 373-377 (June 10) 1936.

RECIPE BOOK OF AMERICAN PHARMACEUTICAL ASSOCIATION

To the Editor:—In Fantus's book "The Technic of Medication," reference is made to a recipe book. Will you please tell me what that book is about, where obtainable, and its price?

CHARLES S. RAND, M.D., Jamaica, N. Y.

ANSWER.—The Recipe Book is published by the American Pharmaceutical Association and is obtainable from sellers of medical books.

A completely revised edition is now available. The price of this publication is $5.

TECHNIC OF OPHTHALMIC SURGICAL PROCEDURES

To the Editor:—Please send detailed information concerning the use of the Peters modification of the Bishop tendon tucker. Also intracapsular cataract extraction with the use of the Kalt capsule forceps.

CHARLES K. MILLS, M.D., McAlester, Okla.

ANSWER.—Detailed instructions as to the use of these two instruments do not belong in this column. Probably the best description of the use of the tendon tucker is by Peters himself and can be found in the second edition of Extra-Ocular Muscles, by Luther C. Peters, 1936, page 303. For the use of the Kalt forceps the reader is referred to *Annales d'oculistique* **162**:489, 1925, or to Die intra-kapsulare Starextraction of Elschnig of 1932, page 45, or to Surgery of the Eye by Torok and Grout, 1925, page 282.

ANTHELMINTICS AS PROVOCATIVE FOR DIAGNOSIS

To the Editor:—Is there any advantage to be derived from the administration of a provocative dose of an anthelmintic in an effort to diagnose intestinal parasitic infestation? Please omit name.

M.D., Indiana.

ANSWER.—Provocative therapy is justified if a prompt diagnosis of worm infestation is demanded so that the time of waiting for the spontaneous passing of the worms or their ova is not available. Castor oil in full dose usually suffices for the threadworm. Santonin may be used for the roundworm, oleoresin of aspidium for the tapeworm.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 29-July 1. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARKANSAS: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, Nov. 10. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic).* Little Rock, Nov. 10. Sec., Dr. Clarence H. Young, 207½ Main St., Little Rock.

CALIFORNIA: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Regular.* Hartford, Nov. 10-11. *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* Derby, Nov. 10. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: Washington, Jan. 11-12. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, Nov. 16-17. Sec., Dr. William M. Rowlett, P. O. Box 786, Tampa.

ILLINOIS: Chicago, Oct. 20-22. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

KANSAS: Topeka, Dec. 8-9. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, Dec. 2-4. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, December. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Portland, Nov. 3-4. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Regular.* Baltimore, Dec. 8. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 17-19. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MINNESOTA: Minneapolis, Oct. 20-22. Sec., Dr. Julian F. DuBois, 350 St. Peter St., St. Paul.

MISSOURI: Kansas City, Oct. 21-23. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

NEVADA: Carson City, Nov. 2-4. Sec., Dr. John E. Worden, Carson City.

NEW JERSEY: Trenton, Oct. 20-21. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, Nov. 30. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OKLAHOMA: Oklahoma City, Dec. 9. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Portland, Nov. 21. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene. *Medical.* Portland, Jan. 5-7. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland.

PENNSYLVANIA: Philadelphia, January. Sec., Board of Medical Education and Licensure, Mr. James A. Newpher, Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Pierre, Jan. 19-20. Dir., Division of Medical Licensure, Dr. B. A. Dyar, Pierre.

TEXAS: Waco, Nov. 10-12. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

VERMONT: Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 9-13. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: Madison, Jan. 12-14. Sec., Dr. Henry J. Gramling, 2203 South Layton Blvd., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Feb. 9-11, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Philadelphia, June. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written* examination will be held simultaneously in different centers of the United States and Canada in December. *Practical* or *clinical* examination will be given in St. Louis in April. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B candidates will be held in various cities in the United States and Canada, Nov. 7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Cleveland, Jan. 9. Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PATHOLOGY: Baltimore, Nov. 17-18. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Mich.

AMERICAN BOARD OF PEDIATRICS: San Francisco, Oct. 22-24. Baltimore, Nov. 15, and Cincinnati, Nov. 19. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 29-30. Application must be sent to the Secretary before Oct. 30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF UROLOGY: Chicago, Dec. 4-6. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Tennessee June Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Knoxville, Memphis and Nashville, June 11-12, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. One hundred and eight candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1936)	83.1, 85.5
Howard University College of Medicine		(1934) (1935) 85.1, 87, 89, (1936) 87.4, 89.3	86.4,
Harvard University Medical School		(1933)	85.3
University of Pennsylvania School of Medicine		(1935)	85.4
Meharry Medical College		(1935) (1936) 81.6, 84.6, 84.8, 85, 85, 85.1, 85.4, 85.8, 85.9, 86, 86.8, 86.9, 87.1, 87.3, 87.5, 87.8, 87.9, 87.9, 87.9, 88, 88.3, 88.4, 88.4, 88.4, 88.6, 89.3, 89.9, 90.1	84.1,
University of Tennessee College of Medicine		(1935) (1936) 78.8, 80.4, 81.9, 82.1, 83.3, 83.5, 83.5, 83.6, 84, 84.3, 84.4, 84.6, 84.9, 85, 85.3, 85.3, 85.5, 85.9, 85.9, 86.1, 86.1, 86.3, 86.8, 87, 87.3, 87.4, 87.4, 89.4	83.5,
Vanderbilt University School of Medicine		(1929) (1935) 84.9, (1936) 82.6, 83.3, 83.4, 83.5, 83.8, 85.1, 85.3, 85.4, 85.4, 85.5, 85.6, 85.6, 85.9, 85.9, 85.9, 85.9, 86.1, 86.4, 86.4, 86.6, 86.6, 86.6, 86.6, 87.1, 87.6, 87.8, 88, 88.4, 88.6, 89.1, 89.1, 89.1, 89.4, 89.6, 90.5, 90.6, 90.6, 92.1	81.4,

Five physicians were licensed by endorsement from July 8 through August 17. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Georgia School of Medicine		(1933)	Georgia
Tulane University of Louisiana School of Medicine		(1921) (1931)	Louisiana, Texas
University of Maryland School of Medicine and College of Physicians and Surgeons		(1935)	Maryland
Washington University School of Medicine		(1924)	Missouri

Michigan Endorsement Report

Dr. J. Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports 40 physicians licensed by endorsement from Jan. 8 through July 30, 1936. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1931)	California
Georgetown University School of Medicine		(1934)	Penna.
Bennett Medical College, Chicago		(1909)	Illinois
Loyola University School of Medicine		(1932), (1933, 2)	Illinois
Northwestern University Medical School		(1934)	Illinois
Rush Medical College		(1928), (1935, 2)	Illinois
School of Medicine of the Division of the Biological Sciences		(1934)	Illinois
University of Illinois College of Medicine		(1934), (1935, 2)	Illinois
Indiana University School of Medicine		(1934), (1935, 2)	Indiana
State University of Iowa College of Medicine		(1930, 2)	Iowa
University of Louisville Medical Department		(1895)	Illinois
University of Louisville School of Medicine		(1935)	Kentucky
St. Louis University School of Medicine		(1933), (1935)	Missouri
Washington Univ. School of Med.		(1926), (1931), (1933)	Missouri
University of Nebraska College of Medicine		(1932)	Kansas
Albany Medical College		(1931)	Mass.
New York University, University and Bellevue Hospital Medical College		(1930)	Illinois
Ohio State University College of Medicine		(1929)	Ohio
University of Cincinnati College of Medicine		(1936)	Ohio
Western Reserve University School of Medicine		(1933, 2)	Ohio
University of Oregon Medical School		(1932)	Wisconsin
Jefferson Medical College of Philadelphia		(1932)	Penna.
Temple University School of Medicine		(1933)	Kentucky
University of Pennsylvania School of Medicine		(1932)	Penna.
Meharry Medical College		(1932) Georgia, (1934)	Tennessee
Ludwig-Maximilians-Universität Medizinische Fakultät, München, Germany		(1931)	Illinois

Oregon June Examination

Dr. Joseph F. Wood, secretary, Oregon State Board of Medical Examiners, reports the written examination held in Portland, June 16-18, 1936. The examination covered 11 subjects. An average of 75 per cent was required to pass. Forty-one candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1936)	90.7
University of Southern California School of Medicine		(1936)	87.7
University of Illinois College of Medicine		(1936)	89
Johns Hopkins University School of Medicine		(1936)	88.6
University of Minnesota Medical School		(1936)	90.9
Creighton University School of Medicine		(1935)	88.7, 89.7
University of Nebraska College of Medicine		(1935)	86.7
University of Oklahoma School of Medicine		(1935)	87.6
University of Oregon Medical School		(1932) (1933) 90.5, (1934) 86.8, 93.5, (1935) 86.9, 87.6, 88.8, 88.9, 89.6, 90.3, 90.7, 91.2, (1936) 86.3, 87.6, 87.8, 87.8, 88.8, 89.1, 89.5, 89.5, 89.7, 89.9, 90, 90.1, 90.1, 90.4, 90.5, 90.9, 91.8, 92.8, 92.8	90.1,
Marquette University School of Medicine		(1935)	89

Seven physicians were licensed by reciprocity and 6 physicians were licensed by endorsement from January 24 through July 21. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Southern California School of Medicine		(1935)	California
State Univ. of Iowa College of Medicine		(1920), (1933)	Iowa
Harvard University Medical School		(1933)	California
University of Nebraska College of Medicine		(1934)	Washington
University of Oregon Medical School		(1934)	California
Jefferson Medical College of Philadelphia		(1925)	California

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1936, 3)	N. B. M. Ex.
Rush Medical College		(1933)	N. B. M. Ex.
University of Oregon Medical School		(1933)	N. B. M. Ex.
University of Toronto Faculty of Medicine		(1929)	N. B. M. Ex.

Book Notices

The Art of Treatment. By William R. Houston, A.M., M.D., F.A.C.P. Cloth. Price, $5. Pp. 744. New York: Macmillan Company, 1936.

This new volume on therapeutics is arranged in seven books. In book I, called "The Art of Treatment," there are the following sounding titles: The Scope of Therapeutics, Surgical Treatment, Pharmacology, Therapeutic Thinking, Diagnosis, Honesty, Economics, and The Doctor as a Therapeutic Agent. Finally several pages, under the title Order of Presentation, tell just how what follows is to be arranged. There are eighty pages, all told, of this.

Book II is called "Patients Who Are To Be Treated Chiefly By Nursing Care," and its first six pages are devoted to a description of what is meant by this title. There then follow twenty-eight pages on the care of typhoid, which is offered as an example of nursing but in which it is difficult to separate the portions on nursing from discussions of venoclysis, "minus" decompensation, and many other things not all of which apply directly to the disease under discussion. Then in an interlude of about three pages the author enlarges on such titles as "What Is the Worth of Nursing Care?" "Trade Unionism," "Fidelity of Execution" and "Nurse as Home Teacher." The homily over, nursing care as applied to typhoid is resumed and continued with somewhat less prolixity through eight more pages. Immediately thereafter one encounters "Common Disorders," in which category there have been placed arbitrarily twenty-three entities, among them those familiar everyday diseases leprosy, plague and yellow fever. Apparently it is felt that any one who has read the preceding 128 pages will need little further guidance in handling these common things—at any rate little is offered in precise form in connection with the discussion of any of them. But still there is not an end of nursing care, for book II approaches its close with sixteen pages in which pneumonia, erysipelas, scarlet fever, rheumatic fever and sepsis find respective places in a chapter entitled "Diseases Treated Chiefly By Nursing Care But in Which There Is Some Question of a Specific." The final eight and one-half pages of the book are devoted to "Diseases Chiefly of the Nervous System."

Book III bears the title "Specifics" and considers the parasitic, endocrine, deficiency and hematopoietic categories, together with a group of diseases "treated by serums and antigens" and another set of three "miscellaneous" conditions, which are acidosis, alkalosis and Asiatic cholera. Treatment is nowhere succinctly discussed here and in some instances the principal modes of therapeutic attack are not even fully indicated. For example, in the brief section on malaria the "standard" treatment is quoted from the 1918 report of the National Malaria Committee, and its worth in the light of present-day knowledge is then expounded as follows: "This very simple statement of the National Committee as to how malaria should be treated is one that might well be put in the hands of every layman who lives in a malarious district. It might be printed weekly in the county paper or even placarded on the barns and fences to the community's advantage. It is easy to see, however, how such a dissemination of knowledge might put a doctor who is not quite sure of himself in a somewhat embarrassing position.

This standard treatment he may have used on plow hands and dock labourers to advantage; but when he is summoned to attend the big boss, who is already aware of the details of the standard treatment, it is quite natural for the doctor to feel that something more than the standard treatment is expected of him—some niceties and refinements of the therapeutic art which the common labourer could not command. Furthermore, the big boss very likely expects rather assiduous attention from the doctor; and what can the doctor do on his several visits, if the whole plan of treatment has been widely published and is known to everyone? All would of course be easy enough if the refinements in the treatment of malaria were better than the standard treatment. Unfortunately, they are not so good and every departure from the standard treatment weakens the therapeutic attack on the disease." Not a single word is offered here indicating the existence of such a thing as treatment by shorter courses and smaller doses of quinine, the plan of malaria therapy which several years ago gained the stamp of approval of the Malaria Commission of the League of Nations and is today advocated by all the world's foremost authorities in the treatment of the disease. Furthermore, what little there is in the text on plasmochin and atabrine is principally in the form of a somewhat facetious admonition against the trial of these new remedies.

Book IV turns to the nervous system again and presents "Conditions in Which the Chief Therapeutic Method Is Psychotherapy or Guidance." The author states that, if the febrile conditions are left out of account, one half the practice in internal medicine is in conditions lying within the realm of this title. So he devotes 239 of his 725 pages of text to book IV. Of course this just consists in going on and on—sometimes instructively, here and there amusingly, but on and on for a full third of the length of the book.

Book V is "Diseases Which Impose a Limitation upon Life as the Condition of Treatment"; book VI, "Disorders in Which Physiological Considerations Guide Treatment"; book VII and last, "Conditions in Which Treatment Is Tentative and Experimental." There are two indexes, one a general index, which is completely inadequate, and an index of names, which is literally a listing of the names of men mentioned in the book and the page or pages on which such mention is made; fortunately the latter completely useless appendage occupies only two and one-half pages. Bibliographic references are scattered throughout the book.

Dr. Houston says that the design of his work is to encourage therapeutic thinking; one may doubt that he has succeeded in doing as much as that but certainly he has himself thought very ponderously and to read the present rambling record of his cogitations is at times an entertaining task. But young men in search of authoritative detail and practical guidance are not likely to find them here or apt to cherish the philosophic ripeness that is offered as a substitute.

Traitement chirurgical de la maladie de Basedow et des goitres toxiques. Par L. Bérard, professeur de clinique chirurgicale à la Faculté de médecine de Lyon, et R. Peycelon. Paper. Price, 40 francs. Pp. 179, with 42 illustrations. Paris: Masson & Cie, 1936.

American students of goiter will be interested in this excellent contribution to the literature, based on thirty years of clinical and operative observations. They will appreciate the knowledge the authors have not only of the European but also of the American literature. The subject matter, as indicated by the title, is largely of a surgical nature and no attempt is made to discuss diagnosis in detail. The authors, however, oppose the dual theory of hyperthyroidism as advocated by the Plummer school and consider exophthalmic goiter and toxic adenoma merely variations of the same disease. In support of this contention, they assert that iodine favorablly influences both types, a contention that has recently been disproved. Likewise, the authors' contention that unfavorable results may occur in exophthalmic goiter from too large doses of iodine is questionable. The authors frankly admit that their mortality statistics of 4 per cent are higher than those reported by American writers. They offer a logical reason for this, because many of their cases do not come to operation until the disease has been active for many years. Resection of the thyroid gland is considered the most successful treatment of exophthalmic goiter. The disease in older persons rarely attains the acute stage it does in the young, and it is more easily cured and without as great a risk. Digitalis is used only in case of decompensation. Iodine is used in the preoperative and postoperative care and continued in gradually decreasing doses. Iodine has replaced the necessity for ligation and x-ray therapy. Patients are kept in bed at least a week before operation (a procedure now seldom used here). Subtotal resection of the gland similar to the method used in America is the preferred operation. The capsule is resutured after a rather radical resection and a midline drain is used. There is an excellent discussion of the surgical technic used in the various types of operations, which is well illustrated. Local regional anesthesia has superseded general anesthesia. The important complications, as hemorrhage, nerve paralysis and tetany, are carefully reviewed. In discussing the end results, the fact is pointed out that what some consider as cures, others term improvement. The authors' statistics show a total of 84 per cent good and 58 per cent excellent results. Again they justly conclude that better results would occur if the patients came to operation sooner. The value of the metabolic rate is appreciated but the clinical criterion is more certain. There are chapters dealing with toxic adenoma and its surgical treatment, also with thyrocardiac disorders and cancer. This book will especially interest American surgeons who desire to know the current continental opinions regarding the operative treatment of toxic goiter.

The Toxæmias of Pregnancy. By Dame Louise McIlroy, D.B.E., L.L.D., M.D., Consulting Obstetrician and Gynæcological Surgeon, Royal Free Hospital, London. Cloth. Price, $5. Pp. 355, with 19 illustrations. Baltimore: William Wood & Company, 1936.

Dame McIlroy's views on the engrossing subject of the toxemias of pregnancy have always attracted commendatory attention from the American medical public. She has now elaborated and embodied certain of her earlier writings in this monograph, together with a comprehensive and discriminatory review and abstract of recent opinions. It is interesting to note that she considers the symptoms of toxemia as being due to disturbances in metabolism, discarding the idea of a specific toxin. Moreover, she embraces the current but still disputed opinion that vomiting or convulsions, for example, are not separate forms of toxemia of pregnancy but merely varying symptoms of metabolic disturbances associated, perhaps, with some deficiency in nutrition or some prepregnancy disease. The entire monograph is precisely the dignified and conservative type of exposition of this baffling subject that would be expected from Dame McIlroy's pen. It should be gratifying to us in this country to note the consideration and space she gives to the work of American investigators. The monograph is satisfactorily divided into sections, discussing in turn mortality rates from toxemia, theories regarding its causation, dietetic and nutritional disturbances in pregnancy, and the symptoms, the effects and the treatment of pregnancy toxemia. The text is made complete by a comprehensive bibliography. Throughout the book there is only one jarring note. This is the frequency with which various pharmaceuticals are recommended under their trade names or with the specification that the preparation of some particular firm be used. The book may be warmly recommended not only to the research worker but also to the practitioner, who will find its many suggestions regarding prevention and treatment especially useful.

Textbook of Gynæcology. By Wilfred Shaw, M.D., F.R.C.S., F.C.O.G., Assistant Physician Accoucheur, St. Bartholomew's Hospital. Cloth. Price, 18s. Pp. 588, with 238 illustrations. London: J. & A. Churchill, Ltd., 1936.

Shaw states in his preface that "this book is intended for the use of students presenting themselves for qualifying examinations, and it may also be of service to practitioners." The author's intentions have been admirably fulfilled. Students will find in this textbook a straightforward exposition of each of the major subjects in gynecology. Ordinarily difficult topics such as pelvic anatomy and embryology are dealt with clearly and concisely, and are made interesting by timely mention of clinical points. Discussions are not interrupted by references to medical literature; moot points are passed over lightly. The doctrines set forth are sound and, with few exceptions, will be acceptable in this country. Practitioners will find the book of practical value. Emphasis is laid on the common disorders; the reader is taught to rely on himself, not on the laboratory, for diagnosis; the sections on treatment are excellent and give

definite, well tempered advice. Authors will find this book a model of good medical writing. The style is fluent, lucid and simple, the chapters are concisely organized and carefully integrated, the entire work is well proportioned and perfectly designed for its purpose. There are adequate illustrations, including good photomicrographs. The publisher's work is flawless. Items that might well have received more emphasis are the electrical cautery treatment of erosions, the use of the basal metabolism test in studying menstrual dysfunctions and sterility, the fitting of contraceptive diaphragms, the importance of curettage prior to x-ray treatment of myomas, and lymphogranuloma inguinale. American gynecologists may be astonished to find pain and cachexia listed among the four "main symptoms" of cervical carcinoma. Indeed, one gains the impression that biopsy of the cervix or of the endometrium is seldom necessary, a point of view entirely contrary to ours in this country. In conclusion, this excellent textbook can be strongly recommended to teachers, students and general practitioners. Specialists in gynecology will find it of little reference value, but it was not designed for them.

The Townsend Crusade: An Impartial Review of the Townsend Movement and the Probable Effects of the Townsend Plan. Paper. Price, 25 cents. Pp. 93. New York: The Committee on Old Age Security of the Twentieth Century Fund, Inc., 1936.

Few, if any, proposals put before the American people in recent years have had so wide an emotional appeal or have so quickly enlisted vast multitudes of followers as has the Townsend plan. Dr. Townsend, then already retired and living near Los Angeles, lost most of his savings in the crash of 1929. So did many other elderly persons. Dr. Townsend had to resume the practice of medicine and was employed to supervise the care of indigent elderly persons in Long Beach. He is not an economist, but the plight of his patients set him to thinking of some way that would save elderly persons from penury after devoting their lives in the main to rearing families. He relates that he was finally moved to "do something about it" by the sight of three old women sifting through the contents of a garbage can—a picture which provoked him into indignation to the point of profanity. With a few dollars of his own money he ordered printed copies of the original petition for $200 pensions and advertised for volunteers to circulate them. The growth of the movement was fast. Within fourteen months it was claimed by its supporters that the plan had the backing of 3,000 Townsend clubs, an average of nearly seven to each congressional district in the country, the clubs at that time having a minimum membership of 100 and a maximum up to 1,700.

The report contains sixty pages of readable material devoted to a review of the old age pension problem, the burden that a $200 a month pension would place on all other citizens, the handicap thus placed on independent business and the huge overestimates made by the Townsend plan adherents as a result of using the wrong base for their figures on transactions taxable at 2 per cent. The committee states that the Townsend illusions are a sensational demonstration of the need for realistic thinking.

It is suggested that an increase in the present governmental assistance for the aged can be obtained in two ways, and in these ways only: (1) an increase in the national income, which can come only from an increase in the production of goods and services, or (2) a further diversion to the aged of the income of the rest of the population.

The committee concludes from its study that anything like $200 a month as an old age pension is utterly impossible with our present economic machinery. It seems, however, that the pensions paid under existing legislation are not adequate, and that it should be possible to pay larger amounts.

Other important observations and conclusions are that forced expenditure, such as is contemplated in the Townsend plan, would not increase the speed with which the income of the aged would be spent; forced expenditures would neither increase nor decrease purchasing power; to maintain the $200 a month figure on which the hopes of many elderly persons are based would reduce a worker's salary by one eighth, while the accumulated taxes would advance the price of common articles by one third; and, finally, an attempt to put the plan into operation would gravely aggravate the very ills which it seeks to cure. The report is readable and illuminating. It is a timely analysis of the program, which is the basis of one of the largest present-day movements. It is impossible to predict what changes may be made in this crusade, but this report will enable interested persons better to understand the genesis of the movement, the underlying motives, the difficulties and fallacies exposed, and the general problem of aid to the aged.

Valor terapéutico de los extractos de corteza suprarrenal. Por Jose Sánchez Rodríguez y Juan Barbudo. Trabajo laureado con el Premio Rodríguez Abaytua 1934, de la Academia Médico-Quirúrgica de Madrid. Paper. Price, 5 pesetas. Pp. 72. Madrid: Imp. "Sáez Hermanos," 1935.

This monograph, including fifty-seven pages of text and a list of 352 references, presents a good compilation of literature on adrenal cortex extracts, assembled in the manner characteristic of many recent review articles in medical research and physiology. Under therapeutic applications of adrenal cortex extracts, reports on treatment of the following conditions are included: Addison's disease, gastroduodenal ulcer, ovarian insufficiency, intestinal intoxication, neuritis, infections, asthenia, muscular dystrophy, cancer, hyperthyroidism, cutaneous diseases, mental diseases and other disorders. Critical discussion of these reports is lacking. With twelve specific ailments and any number of additional conditions under the category of "other disorders" for which adrenal cortex extracts have been employed, usually with alleged benefit, it would seem that at last the elixir of life has been found or else we are dealing with a literature that bears close resemblance to the advertisements of a certain vegetable compound. The authors could have improved their publication by including a critical discussion of some of the remarkable inconsistencies (or absurdities) in the literature cited; e. g., hyperthyroidism has been alleged by some surgeons to be successfully treated by reducing adrenal function (partial adrenalectomy) while certain medical men have claimed similar benefit from adrenal extracts, which means increased adrenal function. The same paradox can be found in the literature on the treatment of gastric ulcer. Can it be that hyperthyroidism and gastric ulcer are related etiologically to hyperadrenalism in the surgical clinic and to hypo-adrenalism in the medical clinic? Adrenal cortex extract appears to be endowed with Dr. Jekyl-Mr. Hyde potentiality, for it has been credited with capacity to increase the basal metabolic rate where increase is desirable (Addison's disease) and to decrease it when indicated (hyperthyroidism). In hypertension it has been reported to lower the blood pressure, while it raises the pressure in adrenal insufficiency. Of course, these seemingly inconsistent observations become quite credible if one accepts, without question, the claim that an adrenal extract produced remarkable improvement in a patient with Addison's disease who (according to a second report) apparently was dead two and a half months prior to the date of the reported improvement! The authors did well to avoid more than is included in their monograph. The literature is too bewildering. If and when adrenal extracts of uniform composition and activity become available and more reliable, well controlled experimental and clinical studies are made, the literature will lend itself better to consideration in book form. At present a monograph on adrenal extracts could best serve a useful purpose when limited to unbiased, fearless, critical consideration of existing literature. Such a book would constitute an interesting commentary on present-day endocrinologic "research."

Vitality and Energy in Relation to the Constitution. By T. E. Hammond, F.R.C.S., Surgeon, The Royal Infirmary, Cardiff. Cloth. Price, 12s. 6d. Pp. 314. London: H. K. Lewis & Co., Ltd., 1936.

It is difficult to evaluate this book. On superficial reading it would be grouped among the many discoursive contributions of clinicians which have little positive scientific or medical value. Dr. Hammond is certainly not widely read in the field of constitution, quite apart from the integrating fields of medicine. The text is not coherent, the case reports are sketchy. But with all these handicaps it reflects the intelligent observations of a surgeon who has watched his patients carefully and who is aware of the fact that our modern medicine with its emphasis on "rare cases and research" is somewhat lacking when it comes to the practical application of our vast store of scientific knowledge to the individual patient. Dr. Hammond feels the need of a wider comprehension of the individual. In his book there is no detailed inquiry into the organic changes of his patients, there is no clinical investigation in the modern sense; rather the groping for a concrete definition of the mean-

ing of constitution, vitality, tonus, physique and stamina—the various chapter headings used in the book. What Dr. Hammond does do is to bring into focus a type of inquiry that is beginning to concern a larger group of physicians, for there are a number of similar books in the continental literature where the trend is definitely labeled as hippocratic. But, while the Greek school was (considering the limitations) always precise and clear, many of these books are rather nebulous and uncertain, and consequently it is doubtful whether medicine will be advanced by such contributions, much though one may appreciate the underlying point of view and the underlying motive. "That things *happen* is nothing: that they should become *known*, everything" (Friedell). Hammond's book discusses things that happen clinically, from an intelligent point of view, and one that may be new to many; unfortunately it contributes nothing concerning the "why" of the happening.

Report on the Works Program. Harry L. Hopkins, Administrator, Works Progress Administration. Division of Research, Statistics, and Records. Paper. Pp. 106, with illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1936.

This is a descriptive and statistical account of the Federal Works Program. The works program is a consolidation of the emergency work activities financed by funds appropriated under the Emergency Relief Appropriation Act of 1935. This act gave expression to the policy that, in place of direct relief, aid for the unemployed was to take the form of useful public work. Under the program, 3,850,000 persons were employed at the end of February 1936. Some of the activities of the program described in this report are the construction of farm-to-market roads which will provide improved highways for millions of farmers—these road projects represent a value of $160,000,000; the construction or repair of 5,300 school buildings; the erection or repair of 4,200 public buildings (excluding schools); the construction or improvement of 5,000 parks and playgrounds; the installation or repair of 6,300 water and sewer system plants; the completion of 328 airport projects; the installation or repair of 130 electric utilities systems, and assistance to 289,000 youths of high school and college age to enable them to continue their studies and to keep them out of the present overcrowded ranks of labor. There has been undertaken a nation-wide cultural program to provide suitable employment to those of the relief population normally engaged in artistic endeavor. Writing, music, painting and drama have always been recognized as vital aspects of civilized life. Many who devote themselves to these cultural activities do not have the physical stamina to engage in the more arduous labor of construction. The Public Works Administration has issued grants and loans of approximately $480,000,000. Funds provided locally account for some $260,000,000, or 35 per cent of the total cost of projects, which was $743,000,000 at the time this report was prepared. Under the Resettlement Administration more than 333,000 destitute farm families in all parts of the country (as of Nov. 30, 1935) were being assisted in readjusting their debts, obtaining necessary capital goods and the like. Plans are being perfected for the transfer of 20,000 families from submarginal lands to places better suited for agriculture. Those who are interested to learn something of the complexity and magnitude of these activities of the Federal Works Progress Administration program will find much material for serious reflection in this report.

Conflicts Between Preschool Children. By Arthur T. Jersild and Frances V. Markey. Child Development Monographs, Monograph No. 21. Paper. Price, $1.80. Pp. 181. New York: Bureau of Publications, Teachers College, Columbia University, 1935.

This is one of the series of monographs on child development and brings "factual information to bear on the time-honored subject of the social versus the individualistic nature of man." The material was derived from an observational study of the aggressive, resistant and hostile behavior of children between 2 and 4 years of age as seen in the nursery schools and kindergartens. The experimental conditions were varied and well controlled and the authors' observations are of great interest from the sociological as well as psychologic aspects. The monograph is informative and provocative. There is a wealth of objective data which should aid our understanding of behavior patterns, both natural and culturally determined.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Compensation of Physicians: Payment on Account as Tolling Statute of Limitations.—The plaintiff, a physician, brought suit against the defendant in July 1935, in the city court of Shreveport, La., for $125 allegedly due for professional services. A balance of $68 was due him for services rendered to the defendant and members of his family up to the close of 1931. On March 15, April 12 and 23, and May 18, 1932, he rendered additional services, for which a charge of $9 appeared on his books. On Sept. 6, 1932, the defendant paid the plaintiff $10. For services rendered thereafter the plaintiff's books showed additional charges of $58. The defendant contended that the physician could not now maintain a suit for the $68 due for services rendered up to the end of 1931 because in Louisiana, by statute, actions on oral or implied contracts must be instituted within three years from the accrual of the cause of action. The physician, however, argued that the payment of $10 made Sept. 6, 1932, interrupted the running of the statute, since it operated as an acknowledgment of the debt and as a payment on account, and the statute should be computed from that date. The $10 paid by him, the patient answered, was intended only to pay for the services rendered by the physician on March 15, April 12 and 23, and May 18, 1932, and was not intended to be used as a credit against that portion of the account which he now contends is barred by the statute. From a judgment in favor of the physician, the patient appealed to the court of appeal of Louisiana, second circuit.

A partial payment on an account, said the court of appeal, is an acknowledgment of liability on that account and operates to interrupt the running of a statute of limitation or prescription. Therefore, if the payment made by the defendant on Sept. 6, 1932, was intended to be a credit on the whole account to that date, the suit, being instituted in July 1935, has been timely instituted. The court then undertook to dispose of the defendant's contention that that payment was made for the restricted purpose of covering the services rendered by the plaintiff on March 15, April 12 and 23, and May 18, 1932. A perusal of the account, the court said, shows that the defendant paid $10 on account in December and in seven other months in 1931. He made no further payment until Sept. 6, 1932, when the payment in question was made. On the face of things, it would appear that this last payment was merely in keeping with the course he had followed in making the eight prior payments. There was as much reason that this payment should have been intended to apply as a credit on the entire account as there was that the eight other similar payments should have been so intended. The court also deemed it significant that the $10 payment made in September 1932 overpaid by $1 the charges the defendant claimed it was intended to pay. The court further thought it unreasonable to believe that the physician would have accepted the payment under the restrictions claimed by the defendant. It concluded that the payment in question was made without any restrictions whatever as to its application as a credit on the entire account, that it operated as an acknowledgment of liability on the entire account and interrupted the running of the prescriptive period. The judgment in favor of the physician was accordingly affirmed.—*Williams v. Plumb (La.), 166 So. 896.*

Workmen's Compensation Acts: Tuberculosis Allegedly Activated by Oil Field Gases.—The claimant, an oil field worker, in the course of his employment, to "thaw out" some pipe connections poured boiling water on them. When the water struck the connections and crude oil, gas or vapor arose. The claimant began to choke and gasp and lost consciousness. He was forced to quit work for the day and, although he returned to work on the next day, the third day he quit his work permanently because of his physical condition. He claimed to be suffering from active pulmonary tuberculosis and, alleging this to be the result of the industrial accident, he instituted proceedings for workmen's compensation before the

Oklahoma industrial commission. Medical witnesses, on behalf of the worker, testified that prior to the industrial accident he was affected with dormant tuberculosis, of which he was not aware and which did not then constitute a disability, and that the choking, gasping and inhalation of vapors or gases while he was attempting to thaw out the frozen connections changed his tuberculous condition from one of dormancy to one of activity. To review an award in the claimant's favor, the employer brought an original proceeding in the Supreme Court of Oklahoma.

The employer challenged the competence and the sufficiency of the medical testimony adduced by the claimant to show the causal connection between his alleged disability and the industrial accident. On behalf of the employer, a medical witness, who was a specialist on chest diseases and who had also made a special study of oil field gases and vapors, testified before the industrial commission that the worker did not have tuberculosis but was suffering from emphysema and other associated complications and that the alleged accident, if it occurred at all, had nothing to do with the claimant's condition. He further testified that oil field gases were not productive of tuberculosis. The employer argued that since all the medical witnesses who testified on behalf of the claimant were general medical practitioners, and not specialists, they were not qualified to express an opinion concerning the causal connection between the present condition of the worker and the industrial accident. Ordinarily, said the Supreme Court of Oklahoma, the difference between the testimony of an ordinary physician and a specialist in a given medical field is one which relates to the weight of the evidence and not to the competence thereof. After an examination of all the medical testimony, the court was unable to agree with the contention of the employer. A witness who testified on behalf of the worker stated that, while he was without detailed technical knowledge of the chemical contents of different oil field gases, he was sufficiently familiar with them to know that some were irritating and that some were not, that regardless of whether the gases inhaled by the worker were irritating or nonirritating they might, and in this case did, in his opinion, produce the worker's disability, and that nonirritating gases could reduce the oxygen content of the air, thus causing the victim to gasp and choke and thereby activate dormant tuberculosis. The court believed that the conclusions announced by the physicians who testified on behalf of the worker presented a question of fact for the industrial commission which was determined in the claimant's favor and it refused to announce a rule of law that would compel a fact-finding body to disregard the testimony of a general practitioner of medicine merely because it is opposed by that of a specialist in a given field. However, the award in favor of the claimant was reversed because of error committed by the commission in computing the amount of compensation to which the worker was entitled. The case was remanded to the commission for further proceedings.—*Skelly Oil Co. v. Rose (Okla.), 55 P. (2d) 1019.*

Narcotics: Entrapment of Physician; Prescribing in "Good Faith" Construed.—The defendant, a licensed physician and pharmacist who operated a drug store, was convicted of violating the Illinois narcotic drug control law and was sentenced to one year imprisonment. He appealed to the Supreme Court of Illinois.

The evidence on behalf of the prosecution tended to show that the prosecuting witness had purchased morphine regularly from the defendant for three or four months prior to April 10 and that the defendant had never on any occasion examined him. In making the purchases, the prosecuting witness testified, he informed the defendant that he was getting the narcotics for his wife who was an addict. On April 10, according to the evidence, the prosecuting witness, pursuant to prearrangements with two police officers, purchased from the defendant $3 worth of morphine tablets, with money supplied by the officers. The morphine purchased was delivered to the officers. Two days later, the witness purchased, pursuant to similar prearrangements, an additional supply of morphine tablets from the defendant and paid for them with a dollar bill, the serial number of which had been noted. This supply was likewise delivered to the officers, who were waiting outside. The arrest of the defendant followed immediately and the dollar bill was found in his possession. The defendant testified, on the other hand, that he had never sold narcotics to the prosecuting witness prior to April 10 and that on that day he examined the witness and detected a mitral murmur, a "hard" pulse, and a cough associated with restlessness and shakiness; that he sold him twelve "sedative tablets;" that on April 12, on being informed by the prosecuting witness that he had lost the supply of tablets sold him on April 10, he sold additional tablets without further examination.

The defendant contended, among other things, that he was unlawfully trapped. Entrapment, said the court, constitutes a valid defense if officers of the law inspire, incite or lure a defendant to commit a crime which otherwise he had no intention of committing. Officers may, however, legally afford opportunities for the commission of a crime and may use artifice and stratagem to catch those actually engaged in criminal enterprises. In the instant case, the court said, the officers did no affirmative act to incite or persuade the defendant to sell the morphine. They merely afforded him an opportunity to violate the statute. In doing so, they acted within their legal rights.

The narcotic drug control law was not unconstitutional, the court said, in providing that "a physician, *in good faith* and in the course of his professional practice only, may prescribe, administer, or dispense habit forming drugs." The use of the phrase "good faith" did not result in ambiguity and uncertainty. In *Crouch* v. *First Nat. Bank*, 156 Ill. 342, 40 N. E. 974, "good faith" was held to mean "honest, lawful intent," and in *McConnel* v. *Street*, 17 Ill. 253, it was held to mean "the opposite of fraud and bad faith." The phrase, said the court in the present case, has a definite and well understood meaning. It is free from ambiguity and its use does not violate the due process clause of the state and federal constitutions.

The trial of the defendant began on the day that the narcotic drug act was repealed and on which the uniform narcotic drug act became effective. The defendant was sentenced under the former act. Because the uniform act reduced the penalty for a first offense, the court was of the opinion that the trial court should have permitted the defendant to elect under which law he desired to be sentenced, as authorized by an Illinois statute. The judgment was therefore reversed and the case remanded to the trial court to accord that opportunity to the defendant.—*People v. Guagliata (Ill.), 200 N. E. 169.*

Society Proceedings

COMING MEETINGS

Academy of Physical Medicine, Boston, Oct. 20-22. Dr. Franklin P. Lowry, 313 Washington St., Newton, Mass., Secretary.
American Association of Railway Surgeons, Chicago, Nov. 5-7. Dr. Daniel B. Moss, 547 West Jackson Blvd., Chicago, Secretary.
American Clinical and Climatological Association, Richmond, Va., Oct. 26-28. Dr. Francis M. Rackemann, 263 Beacon St., Boston, Secretary.
American College of Surgeons, Philadelphia, Oct. 19-23. Dr. George W. Crile, 40 East Erie St., Chicago, Chairman, Board of Regents.
American Public Health Association, New Orleans, Oct. 20-23. Dr. Reginald M. Atwater, 50 West 50th St., New York, Executive Secretary.
American Society of Tropical Medicine, Baltimore, November 18-20. Dr. N. Paul Hudson, Department of Bacteriology, Ohio State University, Columbus, Ohio, Secretary.
Associated Anesthetists of the United States and Canada, Philadelphia, Oct. 19-23. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.
Association of American Medical Colleges, Atlanta, Ga., Oct. 26-28. Dr. Fred C. Zapffe, 5 South Wabash Ave., Chicago, Secretary.
Association of Military Surgeons of the United States, Detroit, Oct. 29-31. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.
Central Society for Clinical Research, Chicago, Nov. 6-7. Dr. Lawrence D. Thompson, 4932 Maryland Ave., St. Louis, Secretary.
National Society for the Prevention of Blindness, Columbus, Ohio, Dec. 3-5. Mr. Lewis H. Carris, 50 West 50th St., New York, Managing Director.
New York State Association of Public Health Laboratories, Albany, Nov. 6. Miss Mary B. Kirkbride, New Scotland Avenue, Albany, Secretary.
Omaha Mid-West Clinical Society, Omaha, Oct. 26-30. Dr. J. D. McCarthy, 107 South 17th St., Omaha, Secretary.
Radiological Society of North America, Cincinnati, Nov. 30-Dec. 4. Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, N. Y., Secretary.
Southern Medical Association, Baltimore, November 17-20. Mr. C. F. Loranz, Empire Building, Birmingham, Ala., Secretary.
Southwestern Medical Association, El Paso, Texas, Nov. 19-21. Dr. Orville E. Egbert, 116 Mills Street, El Paso, Secretary.
Texas Ophthalmological and Oto-Laryngological Society, Fort Worth, Dec. 4-5. Dr. Kelly Cox, 1719 Pacific Ave., Dallas, Secretary.
Tri-States Medical Society of Texas, Louisiana and Arkansas, Longview, Texas, Oct. 26-27. Dr. John M. Ellis, Mt. Pleasant, Texas, Secretary.
Western Surgical Association, Kansas City, Mo., Dec. 11-12. Dr. A. H. Montgomery, 122 S. Michigan Blvd., Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

192: 153-300 (Aug.) 1936

Studies on Transient Ventricular Fibrillation: III. Prefibrillatory Mechanism During Established Auriculoventricular Dissociation. S. P. Schwartz, New York.—p. 153.

Blood Regeneration in Patients with Hematemesis or Melena from Peptic Ulcer, Treated with Usual Ulcer Cure and with Meulengracht Treatment. E. Schiødt, Copenhagen, Denmark.—p. 163.

*Experiments with "Depepsinized" Human Gastric Juice in Treatment of Pernicious Anemia. T. Fitz-Hugh Jr. and A. J. Creskoff, Philadelphia.—p. 168.

*Effect of Aminopyrine on Red, White and Polymorphonuclear Blood Cells of a Series of 100 Patients. W. B. Rawls, New York.—p. 175.

Relation Between Suspension Stability of Erythrocytes and Various Constituents of Pathologic Human Blood. S. P. Lucia, T. Blumberg, J. W. Brown and S. M. Gospe, San Francisco.—p. 179.

Relationship Between Alcoholic Intoxication and Anoxemia. R. A. McFarland and A. L. Barach, New York.—p. 186.

Further Studies on Azotemia Following Hemorrhage in Digestive Tract. G. Alsted, Copenhagen, Denmark.—p. 199.

Excretion of Ferrocyanide in Man in Relation to Urea Clearance. W. Gordon, Chicago.—p. 208.

Phosphatide Content of Albuminous Urine. I. H. Page, with technical assistance of J. Muntz and R. Parker, New York.—p. 217.

Acute Postoperative Necrosis of Liver (So-Called High Temperature Liver Death Syndrome). J. E. Sutton Jr., New York.—p. 219.

Acute Epidemic Encephalitis: Clinical Study of 160 Cases. H. A. Slesinger, Windber, Pa.—p. 225.

Foreign Protein Therapy: II. Treatment of Undulant Fever by Intravenous Injection of Killed Typhoid Paratyphoid A and Paratyphoid B Bacilli. C. E. Ervin, H. F. Hunt and J. S. Niles Jr., Danville, Pa.—p. 234.

Nephritis in Gout. M. A. Schnitker and A. B. Richter, Boston.—p. 241.

Lipoid Pneumonia and Conditions That May Favor Its Occurrence. Leona Baumgartner and D. M. Angevine, New York.—p. 252.

Intranasal Application of Insulin: Experimental and Clinical Experiences. R. H. Major, Kansas City, Kan.—p. 257.

Effect of Gastric Juice, Bile, Trypsin and Pancreatin on Insulin with Alcohol. H. Blotner, Boston.—p. 263.

Advantages of Vacuum Dried Complement for Use in Routine Wassermann Reaction. F. Boerner and Marguerite Lukens, Philadelphia.—p. 272.

"Depepsinized" Human Gastric Juice in Treatment of Pernicious Anemia.—Fitz-Hugh and Creskoff decided to review some of Greenspon's experiments. In summarizing their observations they state that in three patients in the relapse phase of pernicious anemia intramuscular injections of "depepsinized" concentrates of fasting gastric juice obtained from themselves failed to produce significant reticulocyte responses. In one patient the oral administration (of 1,000 cc. in two doses) of "peptically inactivated" normal fasting human gastric juice failed to produce a truly significant reticulocyte response (i. e., no greater reticulocytosis than the authors have observed to occur spontaneously in relapse phases of pernicious anemia). In two patients the intramuscular injection of depepsinized normal fasting human gastric juice concentrates failed to produce significant reticulocyte responses. Thus the authors' experiments fail to substantiate the results and hypotheses of Morris and his co-workers and of Greenspon as regards the sole importance of "intrinsic factor." They think that, while entirely negative, their experiments constitute no grounds for disbelief in Castle's fundamental "conditioned deficiency" concept of pernicious anemia. They believe that Greenspon, although possibly right in his conclusion that peptic digestion destroys "ventriculin," has not proved the rest of his hypothesis regarding the complete unimportance of Castle's "extrinsic" factor and "interaction product" mechanisms.

Effect of Aminopyrine on Blood Cells.—Rawls says that his first two cases of agranulocytosis attributed to aminopyrine medication were observed in 1933. Since that time he has observed two more cases in private practice and two others in consultation. He undertook the present study to determine (1) the frequency of the occurrence of agranulocytosis in patients treated with aminopyrine and (2) any change in the red and white blood cell counts, or polymorphonuclear counts, of patients who were treated with aminopyrine but did not develop agranulocytosis. This was done in an effort to determine whether agranulocytosis might be due to drug idiosyncrasy or whether leukocytic changes occur with any regularity during the course of aminopyrine medication. The author states that during the past three years more than 100,000 tablets of aminopyrine or aminopyrine mixed with magnesium carbonate were administered to 400 patients in the clinic and in private practice. Of these, four (1 per cent) developed agranulocytosis and three of them died. Although this incidence is small, it is important because of the high mortality rate. The author further presents an analysis of the blood pictures of 100 cases (exclusive of those in which agranulocytosis developed). When this series is considered as a whole, the only change noted is a significant increase in the red blood cell counts. When, however, the groups are analyzed separately, there is a definitely significant increase in the red blood cell counts in males with rheumatoid arthritis, a significant increase in the white blood cell counts of the females with rheumatoid arthritis and a possible significant decrease in the polymorphonuclear counts in females with miscellaneous arthritis. It is interesting to note that the red blood cell counts are increased in all groups and that no definitely significant hematologic decrease occurred in any group. From this it might be maintained that agranulocytosis developing during the course of aminopyrine medication must be due to a hypersensitivity or idiosyncrasy.

American J. Obstetrics and Gynecology, St. Louis

32: 183-364 (Aug.) 1936. Partial Index

Some Points in Treatment of Endometrial Hyperplasia by Progesterone Therapy. K. M. Wilson and C. A. Elden, Rochester, N. Y.—p. 194.

*Cervical Dilatation in Dry Labor and After Deliberate Early Rupture of Membranes. A. G. King, Cincinnati.—p. 201.

The Le Fort Colpocleisis. F. L. Adair and Laura DaSef, Chicago.—p. 218.

Acute Nephritis and Pregnancy. W. J. Dieckmann, Chicago.—p. 227.

Low or Cervical Cesarean Section: Analysis of End Results of an Additional 166 Operations. L. E. Phaneuf, Boston.—p. 240.

*Pelvicephalography. R. P. Ball, Chattanooga, Tenn.—p. 249.

Heredity as Cause of Congenital Malformations. Madge Thurlow Macklin, London, Ont.—p. 258.

Intrathecal Injection of Solution of Alcohol for Intractable Pain in Pelvis and Lower Extremities. M. J. Meynier Jr., Houston, Texas.—p. 265.

Study of Action of Gonadotropic Substances Precipitated by Tannic Acid. C. A. Nau, Oklahoma City.—p. 272.

Use of Pituitrin Intravenously in Third Stage of Labor. J. B. Pastore, New York.—p. 280.

Operation to Correct Genital Prolapse Following Vaginal Panhysterectomy. L. Brady, Baltimore.—p. 295.

Cervicitis and Endocervicitis in Relation to Gynecologic Symptomatology. H. J. Holloway, Chicago.—p. 304.

Symptomatic Rupture of Graafian Follicle or Corpus Luteum. N. R. Kretzschmar, Ann Arbor, Mich., and R. E. Arnell, Chicago.—p. 308.

Early Chorionepithelioma Arising in Hydatidiform Mole. M. Garber and A. M. Young, Cleveland.—p. 321.

*Ergot in the Puerperium. C. T. Beecham, Philadelphia.—p. 330.

Recognition and Prevention of Bladder Injuries. S. S. Rosenfeld, New York.—p. 333.

Endometriosis of Umbilicus. H. F. Strongin, New York.—p. 336.

Granulosa Cell Carcinoma. C. B. Kelley and A. M. Gnassi, Jersey City, N. J.—p. 340.

Cervical Dilatation in Dry Labor.—How does the cervix open, and what is the rôle of the amniotic sac in labor, are questions that according to King have been disputed since the beginning of scientific obstetrics. He made investigations on 1,001 uncomplicated full-term parturitions occurring in 1,621 obstetric admissions. Of these, 40 per cent enjoyed intact membranes until complete dilatation and were used as controls. Thirty-one per cent spontaneously ruptured the membranes before the onset of regular pains at twenty-minute intervals and were classed as dry labors. The remaining 29 per cent was made up of those whose membranes were intact only to a dilatation of from 4 to 7 cm. (11 per cent by spontaneous rupture and 18 per cent by deliberate rupture). No light was thrown on the etiology of rupture of the membranes, although it occurred disproportionately more often in primiparas. The occipitoposterior position was not a factor. The length of labor was studied from four points of view: There was a larger

percentage of prolonged labors in the control group than in the dry and partially dry groups. The cumulative distribution curves of percentage completed labors at two-hour intervals was most favorable for completely dry labors and least favorable for the "wet" labors, the partially dry labors falling between. In the partially dry labors there was a positive rather than a negative correlation between the length of the "wet" portion of the labor and the total length of labor. The statistically significant averages of the length of labor showed dry labor to be shorter than the controls by 2.0 (± 0.25) hours for primiparas and 2.4 (± 0.24) hours in multiparas. Concerning the safety of labor in the absence of the membranes, the author says that the incidence of forceps intervention was 16.3 per cent in the control group, 10.6 per cent in the dry labor group and 12.6 per cent in the partially dry labor group. The morbidity was essentially the same in all groups; i. e., 6.2 per cent in the controls, 5.5 per cent in the dry labor cases and 6.7 per cent in the partially dry labors. There was a slightly lower incidence of cervical lacerations in the dry labor group than in the controls, with the partially dry labors falling between. The fetal mortality was unaffected by rupture of the membranes. An exhaustive review of the literature disclosed that reports in the last fifteen years amply confirm the foregoing observations. These results offer support to the explanation of cervical dilatation suggested by Dewees, that in labor the cervix is gradually retracted over the head by muscular action alone. On the other hand, that dilatation is accomplished by the hydrostatic wedge, a theory which has been disputed repeatedly since the eighteenth century, appears to be incompatible with the results of this experiment, since the membranes proved to be unnecessary for a safe, easy and short labor.

Pelvicephalography.—According to Ball, the information obtained from the usual methods of roentgen pelvimetry and fetal cephalometry has been a disappointment to many obstetricians and radiologists. The reasons for this are probably numerous, but mainly it has likely been due to a failure to consider the third dimension. The relationship between the fetal cranium and the birth canal is best visualized by volumetric comparison. The problems in the mechanism of labor cannot be reduced to the simplicity of comparing a fetal skull diameter to a pelvic diameter. It is seldom possible by external means to obtain any definite idea of the mass volume of the fetal skull. Therefore a roentgenographic method that will measure the three dimensional size of the fetal skull and the birth canal should be of aid to the obstetrician. The author directs attention to his earlier description of such a method, which required only two exposures and does not require any measurements of the patient. All data are obtained from roentgenograms in the anteroposterior view with the patient in the supine position and in the lateral view with the patient in the lateral recumbent position. If preferred, the exposures may be made with the patient standing. Also, by one additional exposure in the anteroposterior view the films may be examined stereoscopically. The accuracy of the method has been within 5 per cent error for linear measurements and 10 per cent for volumetric estimations. All types of presentations are measurable and the examination may be done with accuracy from the thirtieth week of gestation. In breech presentations additional exposures are, of course, necessary to measure the fetal skull. The volume of the fetal cranial skull is determined by measuring the circumference of the film images. The magnification of the film image is corrected by a calculator, thereby eliminating any mathematical computation. To obtain measurements conveniently, a correction chart was mounted on a dial and the pointer geared to a calibrated contact wheel similar to a map measure. The fetal skull volume is compared to the volume capacity of two pelvic diameters, the true conjugate and the bi-ischial spine. Following the interpretation of volume ratio, the importance of the architecture of the pelvis in the mechanism of labor in marginal sizes only is discussed briefly. The frequency of occurrence of different type pelves with presentation and position of the fetus near term or in labor in the native Southern white and Negro is tabulated. The absolute rate of increase in volume of the fetal cranium in utero as obtained from roentgenographic data is presented.

Ergot in the Puerperium.—In view of the divergent opinions on the importance of ergot, Beecham studied the morbidity, involution and puerperal bleeding in 551 postpartum cases on three different ergot regimens in the Kensington Hospital for Women. Every patient received an ampule of solution of posterior pituitary and ergot at the completion of the second stage of labor. The first 100 patients received no other oxytocic medication during their stay in the hospital. A series of 351 patients received fluidextract of ergot, U. S. P., starting when the patient was taken to her ward bed. Here she received 1 drachm (4 cc.) every four hours for six doses, and then three times a day for four days. In the third group of the series, 100 cases, a solution of ergonovine was administered in the same way as the fluidextract. It was found that lochia rubra was more persistent in patients receiving no form of ergot during the puerperium. Subinvolution occurred in much higher percentage (41.4 per cent) in nonergot cases than in fluidextract cases (13.2 per cent) and was completely absent in the ergonovine series. A satisfactory puerperium was observed in 58 per cent of patients receiving no oxytocic drug, in 87.8 per cent of patients receiving fluidextract of ergot, U. S. P., and in 98 per cent of patients treated with ergonovine. There was less striking difference in the morbidity percentages in the three groups than in the figures showing degree of bleeding and subinvolution. Thus ergot appears to be a useful and necessary aid to a normal puerperium, preferably in the form of a preparation of known ergonovine content.

American Journal of Public Health, New York

26: 665-760 (July) 1936

Vitamin D in Child Health. F. O. Tonney, Chicago.—p. 665.
Effect of Relief Programs on Public Health Nursing in the State: Preparation of Nurses. Eva F. MacDougall, Indianapolis.—p. 672.
Diagnosis of Infectious Mononucleosis in Public Health Laboratories. C. A. Stuart and F. L. Mickle, Hartford, Conn.—p. 677.
Tabulating Machinery for Indexing and General Tabulation in Vital Statistics Office. G. W. Baehne, New York, and H. L. Porsche, Chicago.—p. 681.
Effect of ERA Nursing Service on Volunteer and Official Agencies. Ruth E. Mettinger, Jacksonville, Fla.—p. 686.
Tuberculosis Studies in Tennessee: Clinic Study with Reference to Epidemiology Within Family. H. C. Stewart, R. S. Gass and Ruth R. Puffer, Nashville, Tenn.—p. 689.
Trained Public Health Engineer in Public Health Departments. C. G. Hyde, Berkeley, Calif.—p. 697.
Detection of Shedders of Streptococci Responsible for Infectious Bovine Mastitis. W. N. Plastridge and E. O. Anderson, Storrs, Conn.—p. 711.
Diphtheria Immunization. W. E. Bunney, Lansing, Mich.—p. 716.
Determination and Estimation of Residual Chlorine. A. E. Griffin, Newark, N. J.—p. 719.
Problems in Rural Registration. R. N. Whitfield, Jackson, Miss.—p. 725.
Treatment of Undulant Fever. I. F. Huddleson, H. W. Johnson and C. P. Bates, East Lansing, Mich.—p. 730.
Standardization and Application of Different Preparations of Diphtheria Toxoid. Olga R. Povitzky, New York.—p. 731.

26: 761-864 (Aug.) 1936

Administrative Practice in the West. J. R. Earp, Santa Fe, N. M.—p. 761.
Modern Trends in Nursing Education. Annie W. Goodrich, New Haven, Conn.—p. 764.
Community Public Health Nursing in the Philippine Islands. G. C. Dunham, Washington, D. C.—p. 771.
Lead Pipes as a Source of Lead in Drinking Water. G. N. Quam and A. Klein, Brooklyn.—p. 778.
Integrated Control of Occupational Diseases. C. O. Sappington, Chicago.—p. 781.
Detailed Study on Diphtheria Immunization, with One Dose Alum Precipitated Toxoid. H. H. Pansing and E. R. Shaffer, Columbus, Ohio.—p. 786.
Response to Rabies Vaccine Prophylaxis as Shown by Protection Tests. J. Reichel and J. E. Schneider, Glenolden, Pa.—p. 789.
Incidence and Behavior of Non-Lactose Fermenting Bacteria from Normal Stools. Ruth M. Kriebel, Boston.—p. 793.
Incidence and Significance of Beta Hemolytic Streptococci in Cultures from Selected Group of Milk Handlers. F. M. Foote, H. Welch, D. Evelyn West and E. K. Borman, New Haven and Hartford, Conn.—p. 799.
Lumber Camp Inspections. E. W. Campbell, Augusta, Maine.—p. 807.
Immediate Allergic Response Following a Schick Test. A. E. Keller and S. Harris Jr., Nashville, Tenn.—p. 809.
Inhibitory Action of Colloidal Sulfur in Corper's Agar on Growth of Four Strains of Mycobacterium Tuberculosis-Hominis. A. B. Massey and G. E. Snider, Richmond, Va.—p. 811.
*Significance of Small Variety Endamoeba Histolytica. Bertha Kaplan Spector, Chicago.—p. 813.

Significance of Small Variety Endamoeba Histolytica.—According to Spector, Endamoeba histolytica is a collective species composed of distinct strains differentiated by the size of their cysts. Endamebas producing small cysts differ from

those producing large cysts physiologically, culturally, immunologically, clinically and in pathogenicity for lower animals. The trophozoites of Endamoeba histolytica producing small cysts are usually smaller and not so motile as those producing large cysts, and they do not ingest red blood cells. Bloody mucous stools in acute cases of amebic dysentery usually show quite large and very motile trophozoites, whereas the trophozoites found in soft stools in mild cases of amebic dysentery and carriers are usually smaller, approaching those giving rise to the small variety Endamoeba histolytica cysts. Endamoeba histolytica producing small variety cysts differs culturally from the endameba producing large variety cysts. They grow infrequently (from 5 to 8 per cent) and with greater difficulty in Cleveland and Collier's medium, in which the large variety grows readily and luxuriantly. In the author's experience, cultures for Endamoeba histolytica from bloody mucous stools in active cases of amebic dysentery were positive in 100 per cent of the cases (forty-nine cases), but only about 95 per cent of the cultures of stools from carriers of the large variety Endamoeba histolytica were positive (thirty carriers). These figures are of clinical patients seeking medical care and are higher than those of food handlers, some of whom take amebicides before coming for examination in order to get a negative report. Arsenic was found in some of the stools that showed large variety Endamoeba histolytica cysts which failed to grow in culture. The cultures of the small variety Endamoeba histolytica must be subcultured every twenty-four to forty-eight hours, whereas those of the large variety need not be subcultured so frequently—every forty-eight to seventy-two hours is sufficient. Endamoeba histolytica producing small cysts differs immunologically from the endameba producing large cysts. It fails to give positive complement fixation when the antigen prepared from the sediment of cultures of Endamoeba histolytica producing large cysts is used in tests with serum from patients infected with the small variety Endamoeba histolytica. There is a difference of opinion as to whether Endamoeba histolytica producing the small cysts is pathogenic. The symptoms are much milder than those caused by the large variety, yet they seem to be typical and are eliminated on specific treatment, especially if the symptoms are of short duration. Until more is known about these organisms, infected persons showing symptoms should be treated. In the author's experience, liver and lung abscesses have not been produced by the small variety Endamoeba histolytica. In none of her cases of amebic liver or lung abscesses was she able to find small cysts in the stools, whereas in every such case the large variety Endamoeba histolytica had been found. Experiments on the pathogenicity for lower animals are still in progress.

American Review of Tuberculosis, New York

34: 179-300 (Aug.) 1936

Pulmonary Tuberculosis and Diabetes Mellitus. J. J. Wiener and J. Kavee, New York.—p. 179.
Diabetes and Tuberculosis: II. Detailed Reports of This Combination of Diseases. G. B. Myers and R. M. McKean, Detroit.—p. 219.
Insulin and Tuberculosis: Partial Review of Literature and Bibliography. F. M. Allen, New York.—p. 230.
Insulin in Treatment of Tuberculosis. F. M. Allen, New York; S. A. Douglass and E. L. Warren, Paterson, N. J., and W. E. Pottinger, Mountain Lakes, N. J.—p. 257.
Use of Insulin in Tuberculosis: Report of Thirteen Cases, with Review of Literature. M. A. Spellberg and S. H. Rosenblum, Chicago.—p. 276.
*High Carbohydrate Diets in Pulmonary Tuberculosis. E. B. Freilich and G. C. Coe, Chicago.—p. 293.

High Carbohydrate Diets in Pulmonary Tuberculosis.—In studying a series of thirty-five patients, Freilich and Coe increased the regular diet of 1,600 calories by 800 calories in terms of Karo syrup and Dyno sugar (dextrose). Thirty-three of these thirty-five patients were definitely benefited by this procedure. Patients who had been gaining in weight before the experiment began had a greater weight increase during the experiment; patients who had been losing weight before the experiment began to gain in weight, stopped losing, or lost less than previously; those who maintained a stationary level before the experiment began gained weight during the experiment. Two of the thirty-five patients showed no change. Twenty-six of these patients lost weight in the month after the experiment, whereas six patients continued to gain; two went home, and one did not lose or gain. All the patients showed a high tolerance for the Karo syrup and the Dyno without any evidences of gastro-intestinal upsets. No glycosuria was present in any of these patients. The blood sugar was within normal ranges before and after the experiment. Karo syrup or Dyno, used alone or in combination, showed no difference in the results obtained. The authors feel that the extra carbohydrates were beneficial to the patients and form a necessary part of the dietary treatment of pulmonary tuberculosis.

Anatomical Record, Philadelphia

65: 371-506 (July 25) 1936. Partial Index

Site of Renal Elimination of Hemoglobin in Rabbit. I. Gersh, Baltimore.—p. 371.
Cytologic Studies by Altmann-Gersh Freezing-Drying Method: II. Mechanism of Secretion of Hydrochloric Acid in Gastric Mucosa. N. L. Hoerr, with introduction by R. R. Bensley, Chicago.—p. 417.
Formol-Thionin Method for Fixation and Staining of Nerve Cells and Fiber Tracts. M.-C. Chang, Peiping, China.—p. 437.
Lymph Collectors from Urinary Bladder and Their Connections with Main Posterior Lymph Channels of Abdomen. Alice E. Parker, Denver.—p. 443.
Relative Acidity of Histologic Fixing Fluids. A. Petrunkevitch and Grace E. Pickford, New Haven, Conn.—p. 461.
Effects of Prepuberal Gonadectomy on Adrenal Gland of Guinea-Pig. M. Zalesky, Chicago.—p. 467.
Form and Structure of Endolymphatic and Associated Ducts in Child. B. J. Anson and J. G. Wilson, Chicago.—p. 485.
*Simple Method for Preparation of Durable Anatomic Specimens. F. A. Mettler and Cecilia C. Mettler, Augusta, Ga.—p. 499.

Simple Method for Preparation of Durable Anatomic Specimens.—The Mettlers fix the specimen in solution of formaldehyde, wash it in water and dehydrate to 95 per cent alcohol, transfer it to benzyl alcohol until saturated, place it in saturated solution of Bakelite resin XR 6787 dissolved in 50 per cent benzyl alcohol and 50 per cent glycerin at 65 C., place it in an incubator at 50 to 60 C. until the solution changes to a mushy white mass of a consistency resembling farina, remove the specimen from the mass, rinse it off with hot water, meanwhile brushing excess solid off with a moderately stiff brush, and allow it to dry. If the specimen is a gross cross section, the surface should be sandpapered smooth and the specimen coated with a layer of Bakelite resin XR 7403. When returned to the oven for forty-eight hours, a glasslike surface will result. After suggesting modifications for certain types of specimens, the authors stress that any of the specimens thus prepared can be stored without danger in drawers, hung on walls or put on shelves. They are not affected by dampness or warmth and are much more durable than composition models.

Annals of Internal Medicine, Lancaster, Pa.

10: 147-282 (Aug.) 1936

Present Status of Treatment of Pulmonary Tuberculosis. L. Brown, Saranac Lake, N. Y.—p. 147.
Tuberculosis Among Student Nurses: Five Year Study at Bellevue Hospital. J. B. Amberson Jr. and H. M. Riggins, New York.—p. 156.
*Diagnosis of Silicosis, with Especial Reference to Roentgenologic Manifestations. L. U. Gardner, Saranac Lake, N. Y.—p. 166.
Silicosis from Public Health and Economic Point of View. A. J. Lanza, New York.—p. 174.
Diabetes Today and Tomorrow. E. P. Joslin, Boston.—p. 179.
Clinical Aspects of Circulatory Dynamics in Arterial Hypertension. A. R. Elliott, Chicago.—p. 194.
Dextrocardia in Children. H. A. Reisman, Jamaica, N. Y.—p. 200.
Lethal Effects of Solar Radiation on Guinea-Pigs. M. Pinner, Oneonta, N. Y., and A. E. Margulis, Tucson, Ariz.—p. 214.
*Occurrence of Macrocytic Anemia in Association with Lesions of Bowel. H. R. Butt and C. H. Watkins, Rochester, Minn.—p. 222.
Medicodental Relations: The Dentist's Point of View. J. T. O'Rourke, Louisville, Ky.—p. 233.

Diagnosis of Silicosis.—Gardner thinks that, regardless of the history of exposure to dust, a diagnosis of silicosis should not be made until generalized discrete nodular shadows are visible in the lung fields. Large localized shadows suggest complicating infection, but there is a conglomerate type of simple silicosis that occurs in the absence of active infection. It may result from pulmonary damage by previous infection that has healed. It can be differentiated from active infection only by careful clinical study and by repeated roentgenograms to exclude change in the character and size of the lesion. The silicotic lung may exhibit the usual manifestations of tuberculosis, superimposed on a background of generalized nodulation; more common are the massive foci of consolidation due

to silicotuberculosis. These may be situated in the upper parts of the lung, where they result from reactivated apical foci of tuberculosis, but frequently they occur in the middle or lower part of the lung. They consist of a very chronic combination of tuberculosis and silicosis progressing simultaneously in the same area. They give rise to much less pronounced symptoms of intoxication than tuberculosis alone. More acute forms of tuberculosis, aspiration disease and miliary tuberculosis occur, but they are not very common. Nonsiliceous dusts are generally responsible for an exaggeration of the linear markings of the lung. As far as known, the slight perilymphatic reactions responsible for them do not interfere with pulmonary function and they do not alter the native susceptibility to tuberculosis. Asbestosis is not so well understood. The roentgenogram shows a diffuse haziness of the lower lung fields and later a very fine uniform stippling. Whether chronic pleurisy, increased linear markings and conglomerate shadows are due to the dust, to secondary changes incident to collapse of the lobules, or to complicating infection, has not been definitely settled. The appearance of a tuberculous lesion in the asbestosis lung is apparently not modified. There may be some tendency toward chronicity.

Macrocytic Anemia in Lesions of Bowel.—Butt and Watkins point out that a variety of conditions are often accompanied by a morphologic blood picture resembling that of pernicious anemia. Conspicuous among these conditions are instances in which the intestinal tract is involved in some disease process. In seven cases of proved ileitis of the terminal portion of the ileum there were six instances of macrocytic anemia, and in the remaining case the anemia was of the microcytic hypochromic type. Apparently the macrocytosis was not dependent on the degree of involvement of the ileum, because the extent of involvement of the ileum was as great in the case in which microcytosis occurred as it was in the remaining six cases. In the six cases in which macrocytic anemia was present, the erythrocytes were well filled with hemoglobin and closely simulated those found in cases of pernicious anemia. However, there was but little poikilocytosis as compared with the degree usually seen in pernicious anemia. Four patients who had an ulcer of the ileum also had hypochromic anemia. In one of these cases the anemia was of the macrocytic hypochromic type, in two cases it was of the normocytic hypochromic type, and in the remaining case it was of the microcytic hypochromic type. Commenting on their observations, the authors say that since the macrocytosis and anemia disappeared following operation in this series of cases, it would not seem essential to treat such an anemia with materials effective in the treatment of pernicious anemia. It seems to them, however, that for good therapeusis such preparations should be used and preferably by the parenteral method, as this should result in a rapid response of the blood to normal. The possible coexistence of pernicious anemia should be kept in mind, and in cases in which the clinical observations support a diagnosis of pernicious anemia the treatment must be continued after operative procedures. The most common symptom in this series of cases was cramping abdominal pain. The authors wish to emphasize that this symptom, particularly in the presence of macrocytic anemia without symptoms of pernicious anemia, strongly suggests a lesion of the ileum.

Annals of Medical History, New York

8: 277-384 (July) 1936

Personalities of Oxford Medical School from 1700 to 1880. H. Rolleston, London, England.—p. 277.
John Hunter in Portugal (Two Letters Written by Him, Recently Discovered). F. Beekman, New York.—p. 288.
Unfamiliar Medical Works by Known and Anonymous Authors in Vatican Palatine Latin Mss. L. Thorndike, New York.—p. 297.
William Alexander Greenhill, M.D. (1814-1894). P. S. Codellas, San Francisco.—p. 306.
Rôle of Nestorians, as Connecting Link Between Greek and Arabic Medicine. A. O. Whipple, New York.—p. 313.
Early Kentucky Medical Literature. E. E. Hume, Washington, D. C.—p. 324.
Making of Anatomies in Seventeenth Century England. H. Silvette, University, Va.—p. 348.
Niels Ryberg Finsen's Disease and His Self-Instituted Treatment. H. Roesler, Philadelphia.—p. 353.
Helmholtz's Theory of Hearing: Historical Note. E. Fischer, Richmond, Va.—p. 357.
Elizabethan Conceptions of Physiology of Circulation. I. I. Edgar, Detroit.—p. 359.

Archives of Otolaryngology, Chicago

24: 127-270 (Aug.) 1936

*Endolymphatic and Associated Ducts in Man. B. J. Anson and J. P. Nesselrod, Chicago.—p. 127.
Retrograde Sinus Thrombosis Complicating Primary Thrombosis of Jugular Vein. F. E. Stone and M. D. Berger, Brooklyn.—p. 141.
New Classification of Bones Forming Skull: Based on Their Function and Embryologic Origin as Influencing Kind, Course and Frequency of Infections of Individual Bones, with Surgical Applications, Especially as to Relation of Osseous Infections to Meningitis. W. P. Eagleton, Newark, N. J.—p. 158.
Readjustment of Equilibrium Following Unilateral Labyrinthectomy. E. L. Ross and A. Olsen, Chicago.—p. 190.

Endolymphatic and Associated Ducts in Man.—Anson and Nesselrod show that, although numerous studies have dealt with the nervous portions of the membranous labyrinth, few have been concerned with the structure of the non-nervous areas of the epithelial ducts. Two portions of the duct system have of late received attention, the slitlike communication of the endolymphatic duct with the utricle and the rugose wall of the endolymphatic duct itself. This study is concerned with the utricular and the endolymphatic duct in man, and particularly with the morphologic features of the ducts that can be studied advantageously with the aid of wax plate reconstructions. Several investigators have shown conclusively that the endolymphatic and related ducts in mammals are complex channels differing in many important respects from the conventional descriptions. The slitlike character of the utricular communication with the endolymphatic duct has been observed to be a striking feature of the duct system; this communication, as has been pointed out by others, is bounded on one aspect by a fold or "valve" (Bast), which anatomically at least is similar to other mechanisms in the body known to be valvular in function. The several dilatations of the endolymphatic duct are observed to be constant features; unlike the usual picture, the endolymphatic duct is considerably enlarged to form a sinus-like space medial to the utricular fold; as it proceeds distally within the vestibular aqueduct, the duct at first narrows and then expands into a second sinus-like space, the walls of which are deeply plicate; these pleats are composed of epithelium over a substratum of loose, vascular connective tissue. The remaining part of the duct is marked by a decided narrowing and, next, a distal swelling in the region commonly termed the endolymphatic sac; here the plications may be taller, but the underlying connective tissue is much less vascular than that in the region of the intermediate dilatation. In agreement with the interpretation of Guild, the authors believe that this system of folds answers the anatomic requirements of a resorptive mechanism for the endolymph. Suggestions are offered for a more descriptive terminology—seemingly needed to designate the specialized portions of the endolymphatic duct described in the recent literature.

Archives of Pathology, Chicago

22: 139-292 (Aug.) 1936

Osseous Metastasis of Carcinoma of Prostate, with Especial Reference to Perineural Lymphatics. S. Warren, P. N. Harris and R. C. Graves, Boston.—p. 139.
Nature of Experimental Cholesterol Arteriosclerosis in Rabbit. G. L. Duff, Toronto.—p. 161.
*Thrombosis of Aorta and Coronary Arteries, with Especial Reference to "Fibrinoid" Lesions. E. Clark, I. Graef and H. Chasis, New York.—p. 183.
Chronic Gastric Ulcer Following Bilateral Vagotomy in Rabbit and in Dog. J. M. Beazell and A. C. Ivy, Chicago.—p. 213.

Thrombosis of Aorta and Coronary Arteries.—Clark and his associates thought that in the study and evaluation of the "fibrinoid" lesions in thrombosed arteries it would be of aid to examine the intimal plaques of atherosclerosis and syphilitic aortitis in nonthrombosed vessels, for in such plaques the earlier stages in the development of this lesion should be seen. The observations were compared with those made in a study of nine parietal aortic thrombi. They could find no evidence to support the view that the fibrin-staining material in the plaques of coronary arteries represents altered or necrotic fibrous tissue. As in the plaques of atherosclerotic and syphilitic aortas, such fibrin-staining masses either represent the remnants of an organizing surface deposit of fibrin or are due to the penetration into the plaque of blood elements.

Arkansas Medical Society Journal, Fort Smith

33: 49-62 (Aug.) 1936

Rising Mortality in Appendicitis and What Are We to Do About It. J. A. Foltz, Fort Smith.—p. 49.

High Carbohydrate Diet in Treatment of Diabetes Mellitus. B. L. Moore, El Dorado.—p. 51.

Postpartum Atony of Uterus. D. K. Kitchen, El Dorado.—p. 53.

Canadian Medical Association Journal, Montreal

35: 117-238 (Aug.) 1936

Internal Secretion as Factor in Origin of Cancer. L. Loeb, E. L. Burns, V. Suntzeff and Marian Moskop, St. Louis.—p. 117.

Observations on Action of Protamine and Insulin in Treatment of Diabetes Mellitus. I. M. Rabinowitch, A. F. Fowler and A. C. Corcoran, Montreal.—p. 124.

Chronic Sinusitis. G. E. Tremble, Montreal.—p. 130.

Studies in Mineral Metabolism: I. Calcium and Kidneys: Clinical. B. Chown, Winnipeg.—p. 134.

Experiences in Leg Lengthening. E. C. Janes, Hamilton, Ont.—p. 137.

Ureteropelvic (Renal) Obstruction in Young. E. R. Hall, Vancouver, B. C.—p. 140.

Moose River Mine Accident. H. K. Macdonald and W. D. Rankin, Halifax, N. S.—p. 143.

Effects of Privation in Moose River Mine Disaster. I. Macdonald, Halifax, N. S.—p. 149.

Recent Progress in Severe Diabetes. Priscilla White, Boston.—p. 153.

Meningococcus Meningitis: Unusual Case. J. V. V. Nicholls, Montreal.—p. 161.

Some Problems of Heart Disease in Childhood. Pearl Summerfeldt, Toronto.—p. 165.

*Alcohol and Glycerin in Treatment of Pyogenic Infections. E. H. Wood, Ottawa, Ont.—p. 168.

Treatment of Empyema Thoracis. O. W. Niemeier, Hamilton, Ont.—p. 172.

*Autogenous Serum Treatment of Narcotic Addiction. D. M. Black, Lungchingtsun, Manchuria.—p. 177.

Elementary Conception of Neuroses. G. N. Paterson-Smyth, Montreal.—p. 179.

Effect of Repeated Injections of Choline and Bacillus Pyocyaneus in the Dog. G. H. Ettinger and G. E. Hall.—p. 183.

Effect of Repeated Injections of Histamine in Dog: A. On the Heart and Blood Vessels. G. H. Ettinger, G. E. Hall and Jessie Lang, Toronto.—p. 184.

Id.: On the Blood. Jessie Lang and G. H. Ettinger, Toronto.—p. 186.

Alcohol and Glycerin in Treatment of Pyogenic Infections.—Wood says that a report by McKim in 1927 drew his attention to the use of alcohol in dehydrating the tissues in infections of the hand and induced him to put the idea into practice, particularly in infections of the tendon sheaths. Glycerin seemed to be the logical agency through which to continue dehydration, lessen the possibility of the dressing adhering to the tissues and keep the wound free from contamination. After trying various percentages of glycerin from 100 per cent down, the diluent being rubbing alcohol, a combination of equal parts of glycerin and alcohol has been found the most satisfactory for general use. The general method of application of this treatment is as follows: In surface infections when only the skin and subcutaneous tissues are involved: 1. Incision is avoided until pus is localized and circumscribed. 2. The area is cleansed with alcohol. 3. A few layers of sterile gauze to cover all the edematous area completely are soaked in glycerin and rubbing alcohol, equal parts, and laid on the affected area. This is covered with a thin layer of absorbent cotton and lightly bandaged with an open-woven gauze bandage. An additional amount of glycerin and alcohol may then be poured over the area at once. No waterproof covering is used. 4. In the case of a limb, it should be splinted or rested; if a hand or arm, it should be carried in a sling. 5. The patient is given prescriptions for lotion 1, which is glycerin and alcohol equal parts, and for lotion 2, which is straight rubbing alcohol. Instructions are given to apply a small amount of lotion 2 every two to three hours, or more frequently in hot weather when evaporation is more rapid. 6. The whole dressing is removed and replaced every twenty-four hours, early in the treatment, although an interval of two to three days may elapse without any particular loss to the effectiveness of the treatment. 7. Careful instructions are given that the dressing must not be removed to make the applications and that no water be applied to the dressing. Should the dressing become moistened with water, as frequently happens in hands, a larger quantity of lotion 2 should be immediately poured over the dressing. When the dressings are being changed, scrupulous care must be taken not to squeeze the inflamed area. As indicated by case reports, the author employed this treatment successfully in infected lacerations, infected amputation of finger, carbuncle of the cheek, infected discharging sinus following operation, noma, infected traumatic bursitis, cellulitis and other conditions.

Autogenous Serum Treatment of Narcotic Addiction.—Black says that a new treatment for narcotic addiction has been gaining increasing popularity throughout the Orient during the past few years. The treatment was originated in Java by Dr. Modinos and consists of the subcutaneous injection of autogenous serum taken from a blister raised with the aid of a cantharides plaster. It is based on the theory that there is an antidotal toxic substance in the serum of addicts. It has a remarkable effect in reducing the withdrawal symptoms and the craving for the drug in those addicted to opium, morphine and heroin. The author does not know whether it has been tried in cases of addiction to cocaine or other drugs. On admission the patient is given a physical examination, and his cooperation is solicited. An estimate is then made of the amount of narcotic he has been taking, and he is given enough tincture of opium by mouth on the first day nearly to equal his customary dose. A plaster is then prepared by taking a 4 inch square of adhesive plaster, to the center of which is applied enough emplastrum cantharidin B. P. to make a circle 1½ inches in diameter and about one-sixteenth inch thick. The skin of the upper abdomen is cleansed with alcohol and the plaster applied. The patient is warned to avoid breaking it, and it is left in place from eighteen to twenty-four hours. It causes some pain. When sufficient fluid has collected in the blister or, in any case, at the conclusion of twenty-four hours, the blister fluid is taken up in a syringe and injected subcutaneously. The amount of fluid obtained from a blister varies greatly. The author injected as much as 10 cc. of blister fluid, but a dose as large as this sometimes causes some reaction and discomfort. Probably the optimal injection is about 5 or 6 cc., though even as little as 1 cc. has an appreciable effect. The blister site heals in a few days without trouble. The author found a 5 per cent solution of tannic acid effective as a dressing. Another blister is applied the day after the injection, and further ones every second or third day as required. The author has not found it necessary to give more than four injections of blister fluid to any one patient. In the meantime tincture of opium is continued in rapidly decreasing doses, combined with tincture of belladonna and tincture of nux vomica. Phenobarbital or pentobarbital sodium is given to assist in obtaining sleep. The bowels are kept open with compound cathartic pills, three or four of which are needed in a dose at the outset of treatment. In every case the injections were followed in a few hours by a lessening of discomfort and a decrease in the craving for the drug. Some of the patients refused opium after their second injection.

Delaware State Medical Journal, Wilmington

8: 163-182 (Aug.) 1936

Delaware and the United States Registration Area. A. C. Jost, Dover.—p. 163.

Ten Year Summary of Discharged Cases from the Brandywine Sanatorium. L. D. Phillips, Marshallton.—p. 167.

Maternal and Child Health Program Aims to Augment Private Practice. W. E. Morris, Dover.—p. 168.

Syphilis Control in Delaware. J. R. Beck, Dover.—p. 171.

Child Defects and the Physician. F. I. Hudson, Rehoboth.—p. 173.

Relation of the County Health Unit to the School Health Program. E. F. Smith, Dover.—p. 174.

What the Public Works Program Has Meant to Delaware. R. C. Beckett, Dover.—p. 175.

Laboratory Comments. R. D. Herdman, Dover.—p. 177.

Objectives of Public Health Nursing. Kathryn Trent, Dover.—p. 178.

Georgia Medical Association Journal, Atlanta

25: 265-308 (Aug.) 1936

Yardstick to Measure Artificial Feedings for Infants. W. A. Mulherin, Augusta.—p. 265.

The Present Day Practice of Rhinolaryngology: Some Comments Based on Forty-Two Years of Experience. D. Roy, Atlanta.—p. 271.

Primary Bronchial Cancer and Difficulty in Early Diagnosis: Case Report. S. R. Roberts, Atlanta, and J. D. Gray, Augusta.—p. 275.

Uretero-Intestinal Anastomosis. G. W. Wright, Augusta.—p. 279.

Public Health Problems in Georgia. T. F. Abercrombie, Atlanta.—p. 283.

Presentation of the "Badge of Service" to the President, James E. Paullin. F. P. Calhoun, Atlanta.—p. 292.

Acceptance of the "Badge of Service" by the President. J. E. Paullin, Atlanta.—p. 294.

Illinois Medical Journal, Chicago

70: 105-204 (Aug.) 1936

Critical Review of 822 Operations on Adrenal Sympathetic System, with Especial Reference to Essential Hypertension. G. W. Crile, Cleveland. —p. 115.
Tuberculosis of Kidney in Childhood and Adolescence. H. L. Kretschmer, Chicago.—p. 119.
Low Dosage Irradiation of Pituitary and Adrenals for Treatment of Nonnephritic Hypertension. J. H. Hutton and E. E. Madden, Chicago. —p. 125.
New Electric Stethoscope and Stethograph (Phonocardiograph): Preliminary Report. J. K. Narat, Chicago.—p. 131.
Various Anesthetic Agents, Especially Some Newer Preparations. J. S. Lundy, Rochester, Minn.—p. 134.
Our Lay Anesthetist Problem. L. F. Anderson, Buffalo.—p. 140.
Present Concept of Endamoeba Histolytica Infestation. A. C. Tenney, Chicago.—p. 145.
Amoeba Histolytica Masking Essential Pathology. E. F. Traut, Chicago. —p. 148.
Surgery of Retinal Detachment. S. J. Meyer, Chicago.—p. 149.
Treatment of Ophthalmia Neonatorum. J. G. Bellows, Chicago.—p. 154.
Early Manifestations of Mental Disorders. S. N. Clark, Jacksonville. —p. 157.
Intraperitoneal and Visceral Temperature Values as Influenced by External Environment. B. R. Selden, Sterling.—p. 159.
*Raw Apple Treatment of Diarrhea in Pediatric Practice. M. P. Borovsky, Chicago.—p. 174.
Syphilitic Aortitis, Pathology, Diagnosis and Therapy. A. Arkin, Chicago.—p. 178.
*Cardiac Emboli. M. P. Gethner, Chicago.—p. 185.
Pulmonary Tularemia: Report of Case with Necropsy. R. B. Lewy, Chicago.—p. 192.
Etiologic Relationship of Aminopyrine to Agranulocytosis. F. Stenn, Chicago.—p. 193.
Black Widow Spider Poisoning: Report of Four Cases. D. J. Louis, Chicago.—p. 195.
Results in Operation for Ingrown Toenail. A. M. Winograd, Chicago. —p. 197.
Side Reactions Encountered in Use of Estrogenic Hormone Therapy. S. A. Zieman, Chicago.—p. 198.

Raw Apple Treatment of Diarrhea in Pediatric Practice.—Borovsky emphasizes that the raw apple diet as a treatment for diarrhea in infants and young children deserves much more attention than it has heretofore received in this country. He reports twenty-three cases of enteral and parenteral diarrhea with uniformly good results within fourteen to forty-eight hours after the institution of this treatment. The youngest patient was 15 days old and the smallest weighed 4 pounds 12 ounces (2,155 Gm.). The acute diarrheas are the quickest to respond with firm stools. This diet must exclude all other foods except weak tea or water. This treatment has a definite place in the management of diarrhea cases especially when medication is refused or is difficult to administer. The beneficial effects of the raw apple in these cases is probably due to the adsorptive power of the apple pulp, the malic acid, the pectins and possibly the tannates. No other single therapeutic measure has so simply and uniformly corrected such diarrheas as are here reported.

Cardiac Emboli.—Gethner shows that embolism will produce symptoms which simulate various other diseases, the real condition often being overlooked. He thinks that the possibility of embolism should always be suspected in the presence of heart disease, especially when there is an associated auricular fibrillation, when there was a recent operation, in the presence of phlebitis, puerperal sepsis or following quinidine medication. In discussing the use of drugs in emboli, he takes up the action of digitalis and quinidine. He lists the following as the contraindications to the use of quinidine: 1. Cases in which there is congestive and distressing heart failure. 2. Badly damaged hearts—myocardial degeneration and arteriosclerosis. 3. History of previous embolism. 4. Active acute or subacute bacterial endocarditis. 5. Fever. 6. Multiple valve lesions. 7. Disordered conduction, such as partial or complete heart block. 8. Fibrillation of long standing. 9. Coronary diseases of the heart. 10. If the patient has not had a previous course of digitalis. 11. In combination with digitalis. 12. If the patient is not confined in a hospital where the action of the drug can be watched. 13. After one course of quinidine that did not succeed in restoring normal rhythm. The indications for the use of quinidine are but few. It may be tried in paroxysmal auricular tachycardia to prevent the recurrence of an attack. The dose should be fractional. It may be used also for symptomatic relief in auricular fibrillation, provided none of the factors enumerated under contraindications are present. Auricular flutter preceding the normal rhythm may be the real cause of embolus formation. It is best not to try to cure the patients of auricular fibrillation by employing drugs, especially when the condition is of long standing.

Indiana State Medical Assn. Journal, Indianapolis

29: 363-408 (Aug.) 1936

Relationship of Preliminary Medication to Anesthesia. J. S. Lundy, Rochester, Minn.—p. 363.
Use of Continuous Suction in Surgical Treatment: New Apparatus for Suction Siphonage. F. B. Ramsey, W. D. Little and J. E. Pilcher, Indianapolis.—p. 365.
Craniopagus Monster. J. B. Rogers, Michigan City.—p. 368.
Pericarditis in Uremia. A. B. Richter, Flora.—p. 369.
Advice to Interns Entering Practice. E. D. Clark, Indianapolis.—p. 373.
Bio-Assay of Fibro-Adenoma of Breast for Estrogenic Substance. M. V. Kahler, Indianapolis.—p. 374.
Leukorrhea. H. D. Tripp, Logansport.—p. 376.
Water Metabolism. R. A. Solomon, Indianapolis.—p. 379.

Journal of Comparative Neurology, Philadelphia

64: 187-364 (Aug. 15) 1936

Electrical Stimulation of Points in Forebrain and Midbrain: Resultant Alterations in Respiration. H. Kabat, Chicago.—p. 187.
Purring Center in the Cat's Brain. E. L. Gibbs and F. A. Gibbs, Boston.—p. 209.
Development of Finer Structure and Fiber Connections of Globus Pallidus, Corpus of Luys and Substantia Nigra, in the Pig. R. F. Shaner, Edmonton, Alta.—p. 213.
Acusticolateral Nervous System in Fishes. A. A. Pearson, Chicago.—p. 235.
Cerebellum and Corpus Pontobulbare of the Bat (Myotis). O. Larsell, Portland, Ore.—p. 275.
Some Determinations of Ratio of Nerve Fibers to Nerve Cells in Thoracic Dorsal Roots and Ganglions of Cat. D. Duncan and L. L. Keyser, Galveston, Texas.—p. 303.
Lamination of Medial Lemniscus in Macacus Rhesus. A. Ferraro and S. E. Barrera, New York.—p. 313.
Relation of Nerves to Degenerating Taste Buds. T. W. Torrey, Bloomington, Ind.—p. 325.
Hereditary Defects of Corpus Callosum in Mouse, Mus Musculus. L. S. King, Boston.—p. 337.

Journal of Nervous and Mental Disease, New York

84: 125-248 (Aug.) 1936

Relationship of Intellect to Speech Defect in Aphasic Patients. F. Kennedy and A. Wolf, New York.—p. 125.
Encephalomalacia with Marked Reactive Gliosis of Entire Hemisphere. K. A. Menninger, Topeka, Kan.—p. 146.
*Fat Feeding in Schizophrenia. A. T. Brice Jr., Palo Alto, Calif.—p. 152.
Cortical Innervation of Respiratory Movements: I. Slowing of Respiratory Movements by Cerebral Stimulation. P. C. Bucy and T. J. Case, Chicago.—p. 156.
Etiology of Subdural Hematoma: Anatomic and Pathologic Study. J. A. Hannah, Toronto.—p. 169.
Total Hemiatrophy and Cerebellar Tumor. R. H. Kampmeier, New Orleans.—p. 187.

Fat Feeding in Schizophrenia.—Brice says that the rationale of raising the level of the blood fats in schizophrenia has been fairly definitely established. He mentions the observations of Mott, Stenberg and Duncan and points out that he himself found that in schizophrenia there is a real depression of level of the blood cholesterol, unsaturated and total fatty acids and glutathione below the norm, and that statistically a greater significance attaches to the depression of glutathione and of the fatty acids than to that of the cholesterol. He also adduced evidence supporting the conclusion that the correlation between emotional phenomena and the level of the blood unsaturated fats is closer than that existing between the emotional state and the level of the total blood fats or blood cholesterol. With such considerations and the generally recognized fact that schizophrenic patients are emotionally flat as a background, an effort has been made to elevate the level of the blood fats in a schizophrenic group through an increase of fats in the diet. The group of eleven patients selected consisted of three extremely stuporous and apathetic catatonic patients, three stuporous apathetic patients carrying hebephrenic diagnoses, four actively hallucinated hebephrenic patients and one actively delusional paranoid patient. The diet was based on the observation of Man and Gildea that a balanced meal containing at least 0.6 Gm. of fat per kilogram of body weight and with carbohydrates and proteins slightly exceeding the weight of fats could be ingested by normal men and women without causing discomfort or nausea. The increase of fats was given in the

form of additional butter, cream, milk, eggs, meat fat and vegetable fats in the salad dressing. The diet was built up progressively. The final twenty-four hour diet thus attained consisted of protein 72 Gm., carbohydrate 130 Gm. and fat 178 Gm. The total calories of this diet averaged approximately 2,400. Specimens of blood for determination of serum cholesterol, iodine absorption, total fatty acids and blood glutathione were taken before breakfast at least once each month from each patient. When after four months of fat feeding no appreciable elevation of the blood chemistry had been effected, castor oil in one ounce daily dosage was added to the diet and several weeks subsequently acidophilus milk in liberal quantities as suggested by Ingram. No ketosis was produced by this diet. No elevation of the blood chemistry level was effected. No marked changes in weight of any of the patients occurred. No significant mental or emotional change in any of the patients was recorded. During the seventh month of fat feeding, specimens of feces were obtained from each patient and the total lipins were estimated. The figures so obtained were compared to those of an exactly similar series from the same number of general medical and surgical patients on ordinary hospital diet and showed that the schizophrenic patients were eliminating almost exactly twice the amount of the fecal fat of the general medical and surgical patients; that is to say, schizophrenic patients on a 178 Gm. fat diet had a fecal fat content of 8.4 per cent, while general medical and surgical patients on a 122 Gm. fat diet had a fecal fat content of 4.2 per cent. It will be noted that proportionately to the dietary intake the excretion of fecal fat by the schizophrenic group should have been but 6.1 per cent instead of 8.4 per cent as found. This observation is considered evidence suggestive of anabolic hypofunction in schizophrenia.

Journal of Nutrition, Philadelphia

12: 113-222 (Aug. 10) 1936

Specific Dynamic Action of Glycine Intravenously Administered to Nephrectomized Dogs. A. G. Eaton, S. C. Cordill and J. L. Gouaux, New Orleans.—p. 113.

Phosphorus Deficiency Metabolism and Food Utilization in Beef Heifers. M. Kleiber, H. Goss and H. R. Guilbert, Davis, Calif.—p. 121.

Activity of Yeast Extract in Prevention of Renal Hypertrophy Caused by High Protein Diets. B. B. Longwell, R. P. Johnston and R. M. Hill, Denver.—p. 155.

Study of Fecal Flora and Line Test of Normal Rats, Rachitic Rats and Healing Rachitic Rats. Helen Friedman, New York.—p. 165.

Studies on Blood and Tissues in Nutritional Muscular Dystrophy. S. Morgulis and H. C. Spencer, Omaha.—p. 173.

Metabolism Studies in Nutritional Muscular Dystrophy. S. Morgulis and H. C. Spencer, Omaha.—p. 191.

Effect of Selenium Containing Foodstuffs on Growth and Reproduction of Rats at Various Ages. K. W. Franke and V. R. Potter, Brookings, S. D.—p. 205.

Effect of Administration of Sodium Bicarbonate and of Ammonium Chloride on Amount of Ascorbic Acid Found in Urine. Estelle E. Hawley, J. P. Frazer, L. L. Button and D. J. Stephens, Rochester, N. Y.—p. 215.

New England Journal of Medicine, Boston

215: 265-314 (Aug. 13) 1936

The Massachusetts Cancer Program. H. D. Chadwick and H. L. Lombard, Boston.—p. 265.

Convalescent Care in Chronic Arthritis. J. G. Kuhns and R. J. Joplin, Boston.—p. 268.

*Vertical Fracture Through Lower Tibial Epiphysis During Period of Bone Growth and Operation for Correction of Resultant Deformity: Report of Case. R. H. Morris and F. H. Downing, Boston.—p. 272.

Dehydration Therapy in Toxemias of Pregnancy: Report of Sixty-Five Cases. G. E. May, Boston.—p. 277.

The Problem of Eye Injuries. Constance G. Hartwell, West Newton, Mass., and W. D. Rowland, Boston.—p. 290.

Fracture Through Tibial Epiphysis During Period of Growth.—According to Morris and Downing, vertical fractures through the lower tibial epiphysis sustained during the period of bone growth are comparatively rare. This type of fracture is an entity comparable to Pott's or Colles's fracture. The mechanism of its production is always the same and the resultant deformity varies only in degree in each individual fracture. The authors show that the slowly developing deformity is due to the arrested growth of the medial portion of the tibia, resulting from destruction of epiphyseal plate cells. In describing the history of a boy, aged 8, the authors show that the initial treatment of this type of fracture is careful manipulation and immobilization. Repeated violent manipulations or open reduction for the purpose of procuring exact replacement of the fragments is contraindicated because by so doing there may be further destruction of the epiphyseal plate cells. The indications for operative measures to correct this deformity before the completion of bone growth are (*a*) instability of the ankle or knee or (*b*) an increase in the severity of the secondary deformities of the knee and spine. They describe an operation that corrects the deformity and maintains the normal length of the leg. The lower third of the right tibia is exposed by an incision 4½ inches long, parallel and lateral to the crest of the tibia. The periosteum is incised in the line of the skin incision and separated by blunt dissection from around the tibia. About 1 inch above the lower epiphyseal line of the tibia the periosteum and interosseous membrane are divided horizontally. A step osteotomy is done on the tibia, leaving 3 inches between the steps and the lower step about 1½ inches above the lower epiphyseal line. A simple osteotomy of the right fibula is done through an incision 1½ inches long over the outer side of the leg. The upper and medial corner of the lower fragment is removed to prevent too great pressure on the soft tissues of the leg when the foot is put into a corrected position. With a hand drill three No. 30 hardened steel pins are inserted—one through the os calcis and the other two through the upper fragment of the tibia just above the line of incision. The two upper pins are parallel to each other and at right angles to the long axis of the tibia. The lower pin is at right angles to the vertical plane of the os calcis. The periosteal tube cannot be sutured over the bone. The wound is closed with interrupted plain catgut for the subcutaneous tissue and black silk for the skin suture. The three pins are fitted with a leg lengthening apparatus, which is set to hold the foot in a corrected position under slight tension.

New Jersey Medical Society Journal, Trenton

33: 441-492 (Aug.) 1936

Notes on History of Medical Practice in Camden County. H. B. Decker, Camden.—p. 447.

The Newer Trends in Surgery. D. B. Allman, Atlantic City.—p. 451.

Children and Tuberculosis Programs. W. L. Weintraub, Paterson.—p. 454.

Tuberculosis in Childhood and the Teen Age. B. Gordon, Philadelphia.—p. 456.

Mechanism of Committing Mental Patients to State Hospitals in New Jersey. J. B. Gordon, Marlboro.—p. 459.

Beriberi in New Jersey: Report of Case. G. M. Levitas, Westwood.—p. 462.

Staphylococcic Meningitis Treated with Autogenous Bacteriophage. D. E. Frank, Belleville.—p. 466.

After All, the Patient Is Human. C. F. Becker, Camden.—p. 471.

Case of Cold Allergy with Spontaneous Recovery. M. Ehrlich, Elizabeth.—p. 477.

Rocky Mountain Spotted Fever: Report of Case. H. C. Goldberg, Perth Amboy.—p. 478.

Maternal Welfare: Article Number Seven: The Intern's Education in Obstetrics. W. K. Pudney, Montclair.—p. 479.

New York State Journal of Medicine, New York

36: 1075-1134 (Aug. 1) 1936

Relations of Acid Base Equilibrium to Pathogenesis and Treatment of Whooping Cough. J. C. Regan, Brooklyn, and A. Tolstoouhov, New York.—p. 1075.

Circulatory Efficiency: Surgery, Digitalis and Death. C. W. Crampton, New York.—p. 1087.

*Retention of Lipiodol in Fallopian Tubes, with Especial Reference to Occlusive Effect in Cases of Permeable Strictures. I. C. Rubin, New York.—p. 1089.

Nonhealing of Mastoid Wounds: Causes and Remedies. R. Almour, New York.—p. 1097.

Pathology of Mental Disorders. N. D. C. Lewis, New York.—p. 1101.

Irradiation in Thyrotoxicosis. J. T. Stevens, New York.—p. 1109.

Cancer of Esophagus Perforating into Right Bronchus: Case Report. W. L. Watson, New York.—p. 1111.

Between Mental Health and Mental Disease. B. Liber, New York.—p. 1113.

Retention of Iodized Oil in Fallopian Tubes.—Rubin points out that, if the tubes were closed before iodized oil was injected into them, they remain closed and the patient suffers no appreciable loss of her chances for conception. If the tubes are perfectly normal before the iodized oil injection, the chances are that they will remain patent, as peristalsis may be relied on to expel the oil into the peritoneal cavity or into the vagina.

When the tubes are constricted intrinsically or extrinsically by agglutinations of their mucosa or serosa, the oil can be retained and serves to complete the blockade. The oil is retained in the tubes because of two factors: (1) impaired tubal function and (2) the viscosity of the iodized oil. In the presence of a stricture, peristalsis is as a rule reduced and hence is inadequate spontaneously to force the iodized oil through the tight point. It has been demonstrated that greater force is necessary to inject iodized oil through the same tube than water or gas, and this is especially true when the lumen is strictured. The pressure required for the gas to pass such a narrow lumen is frequently as high as 160 or 200 mm. of mercury when carbon dioxide is employed and greater when iodized oil is used. The force of tubal contractions can be measured in millimeters of mercury. The contractions range at the maximum between 50 and 60 mm. of mercury. Assuming that vigorous antiperistaltic contractions may reach a pressure of 100 mm. of mercury, they would not be strong enough to force all the retained oil through the stricture. The author describes cases in which he observed iodized oil retention. These cases and several others in which infection followed iodized oil injection caused him to proceed very cautiously with its use, limiting it to the occasional patient in whom an operation was considered. However, without exhibiting frankly inflammatory signs and symptoms, the retention of iodized oil may induce a local irritation and foreign body reaction which has a definitely deleterious effect in partially strictured tubes leading to permanent occlusion. This is illustrated with case histories. The pathologic conditions found were inspissation, foreign body giant cell infiltration, and closure of the lumen. This lesion is almost identical with the lesion produced by gonorrhea and tuberculosis, from which it must be differentiated. The result is sterility. The author reaches the conclusion that, until a radiopaque substance shall be available having the proper viscosity and density to demonstrate permeable tubal strictures and possessing that degree of resorption which leaves no residue within the tubal lumen after a few hours, thus preventing foreign body reaction, it would be well in instances of sterility to stop using iodized poppy-seed oil and other iodized oils whose chemical composition is more or less the same.

Northwest Medicine, Seattle

35: 285-324 (Aug.) 1936

Principles of Diagnosis in Digestive Field. T. R. Brown, Baltimore.—p. 285.
Upper Abdominal Adhesions. O. F. Lamson, Seattle.—p. 293.
Orthostatic Hypotension: Report of Six Cases and Review of Literature. E. M. Chew, E. V. Allen and N. W. Barker, Rochester, Minn.—p. 297.
Wounds and Their Repair. J. A. Wolfer, Chicago.—p. 303.
New Respiratory Apparatus. C. A. Ewald, Seattle.—p. 311.
Epidemic Dysentery in the Yakima Valley. H. H. Skinner, Yakima, Wash.—p. 313.

Oklahoma State Medical Assn. Journal, McAlester

29: 273-308 (Aug.) 1936

*Esophageal Diverticula. R. M. Howard, Oklahoma City.—p. 273.
Medical Aspects of Gallbladder Problem. J. F. Daly, Pawhuska.—p. 278.
Combined Nonspecific Ulcerative Colitis and Ileitis. V. H. Musick, Oklahoma City.—p. 280.
Epidemic Cerebrospinal Meningitis. R. H. Lindsey, G. L. Johnson and W. P. Greening, Pauls Valley.—p. 283.
Care of the Premature Infant. A. L. Salomon, Oklahoma City.—p. 286.
Nervous and Mental Problems in Obstetrics. J. Feild, Enid.—p. 289.

Esophageal Diverticula.—Following a review of the earlier literature on esophageal diverticula, Howard discusses the etiology, symptomatology, diagnosis and treatment of this condition. He then gives brief histories of seven cases, which came under his observation in the last two years. The patients were from 65 to 78 years of age, the average age being 72.3 years. Symptoms were present for from four months in one case to twelve years in another. The average time symptoms were present was 4.33 years. The five patients operated on made uneventful recovery without complications and were entirely relieved of the distressing condition. The author thinks that esophageal diverticula are probably more common than ordinarily thought and that dissemination of knowledge concerning the typical symptom will result in more cases being diagnosed. The two-stage operation has proved entirely satisfactory in his hands.

Public Health Reports, Washington, D. C.

51: 989-1026 (July 24) 1936

Sickness Among Male Industrial Employees During First Quarter of 1936. K. Brundage.—p. 989.
Communicable Diseases and Activities for Their Control in Brunswick-Greensville Area. J. O. Dean and E. H. Pennell.—p. 991.

51: 1027-1068 (July 31) 1936

History of Leprosy in Louisiana. O. E. Denney.—p. 1029.
Oxidation of Sewage by Activated Sludge. P. D. McNamee.—p. 1034.

51: 1069-1104 (Aug. 7) 1936

*Encephalitis Virus (St. Louis Type): Effect of Partial Specific Immunity on Clinicopathologic Picture in Intracerebrally Inoculated White Mice. C. Armstrong and R. D. Lillie.—p. 1069.
Primary Pneumonias of Infants and Children. J. G. M. Bullowa and Evelyn Greenbaum.—p. 1076.
Mortality from Automobile Accidents Among Children in Different Geographic Regions of the United States, 1930: Studies on Fatal Accidents of Childhood Number One. W. M. Gafafer.—p. 1083.

51: 1105-1144 (Aug. 14) 1936

Prevention of Intranasally Inoculated Encephalitis (St. Louis Type) in Mice and of Poliomyelitis in Monkeys by Means of Chemicals Instilled into Nostrils. C. Armstrong and W. T. Harrison.—p. 1105.

51: 1145-1182 (Aug. 21) 1936

Estimate of Monetary Value to Industry of Plant Medical and Safety Services. D. K. Brundage.—p. 1145.

Encephalitis Virus.—Armstrong and Lillie found that normal mice, when intracerebrally inoculated with the St. Louis type of encephalitis virus, usually developed a clinicopathologic picture pointing predominantly to a brain localization. Partially immune mice, when intracerebrally reinoculated, after a suitable interval, with a proper dose of virus, tended to develop symptoms and disturbances pointing predominantly toward a cord localization. The pathology is that of a destructive inflammation of the gray substance. The authors failed to produce the predominantly myelitic symptoms when the second inoculation was made by the intranasal route. The paralyses may be permanent or undergo variable to apparently complete recovery. These observations are probably best explained by assuming that cord cells of mice are relatively more susceptible to the virus of encephalitis than are the brain cells and therefore require a higher degree of immunity to afford protection when once the cord is reached by the virus. The possibility of a difference in response by brain and cord cells to active immunization cannot, however, be ruled out.

Radiology, Syracuse, N. Y.

27: 131-260 (Aug.) 1936

Unusual Periostitis in Children. C. B. Rose, Chicago.—p. 131.
What Kind of Tube Did Röntgen Use When He Discovered the X-Ray? O. Glasser, Cleveland.—p. 138.
Dilatation of Pulmonary Artery of Congenital Origin. L. A. Smith, W. P. Moenning and G. S. Bond, Indianapolis.—p. 141.
Use of Geiger-Müller Counters for Locating Radium and for Measuring Gamma-Ray Intensities. G. L. Locher, Swarthmore, Pa., and J. L. Weatherwax, Philadelphia.—p. 149.
*Management of Cervical Metastatic Epidermoid Carcinoma. W. Clarkson and A. Barker, Petersburg, Va.—p. 158.
*Treatment of Benign Uterine Hemorrhage by Irradiation. J. J. Quiney, Easton, Pa.—p. 165.
Planeography, Localization and Mensuration: "Standard Depth Curves." J. Kaufman, Brooklyn.—p. 168.
Effect of X-Rays on Fine Structure of Parenchyma of Thyroid Gland (Second Article). B. S. Zimnitsky, N. A. Baskina and A. P. Devirz, Svordlovsk, U. S. S. R.—p. 175.
Fractures of Spine: Report of 173 Cases. R. G. Giles, Temple, Texas.—p. 182.
Some Physical Problems of High Voltage X-Ray Therapy. F. M. Exner, New York.—p. 186.
Biologic Roentgen. C. Packard, New York.—p. 191.
Rate of Recovery of Human Skin from Effects of Hard or Soft Roentgen Rays or Gamma Rays. W. S. MacComb and Edith H. Quimby, New York.—p. 196.
Further Development in Supervoltage Therapy Apparatus. T. Leucutia and K. E. Corrigan, Detroit.—p. 208.
Heredity and Radiation. M. Demerec, Cold Spring Harbor, N. Y.—p. 217.
Mitosis During Healing of X-Ray Burns. J. A. Cameron, Columbia, Mo.—p. 230.

Management of Cervical Metastatic Epidermoid Carcinoma.—Clarkson and Barker demonstrate that the present high mortality rate from carcinomas of the upper mucous membranes is largely the result of a lack of proper treatment of the areas of lymph drainage by many physicians who attempt

to treat the primary lesions. Preoperative irradiation should always precede biopsy and all other forceful manipulations of the primary lesion. The possession of a thorough knowledge of the various methods of treatment, of adequate knowledge of tumor pathology and of sufficient courage to be scientifically radical are absolutely essential when treating cancer. Careful attention must be paid to the lethal dose of radiation for the various types of neoplasms, and, whenever indicated, the irradiation must be carried to the limits of tissue tolerance. The radiosensitiveness of an epidermoid carcinoma increases in direct proportion to the amount of anaplasia, and this rule probably holds true of all neoplasms when considered separately within their own histologic classification. Therefore, sections should be taken from various parts of the primary growth to insure accurate grading and the direction of treatment accordingly. Prophylaxis is left to external irradiation alone. All patients with metastatic nodes are treated principally by a combination of external and interstitial irradiation. The operable nodes that may then remain are removed by means of an endotherm. Radical surgery is resorted to only in operable cases of melanomas and grade 1 carcinomas with extensive metastases. In cases of infection, small daily doses (100 roentgens) of external radiation should be given first for about ten days; pus collections should be evacuated with an endotherm and, in cases in which implantation therapy is used, removable seeds are advised because the strings facilitate drainage. Insulin and vitamin concentrates will improve the appetite and general condition of cancer patients, but no one can be certain at the present state of our knowledge that malignant cells are not likewise stimulated. Therefore, for the present it may be well to confine their use to diabetic patients and to nondiabetic patients in a state of extreme inanition.

Treatment of Benign Uterine Hemorrhage by Irradiation.—So far as Quiney's own experience is concerned, the use of external irradiation by means of roentgen rays is entirely satisfactory in the treatment of benign uterine hemorrhages, so that he now rarely uses radium, thereby avoiding the surgical procedure necessary for its intra-uterine application. He shows that irradiation is undoubtedly the treatment of choice in cases of menorrhagia of the menopause associated with fibromyoma. It yields extremely satisfactory results in cases in which the fibromyoma does not exceed in size a four months pregnancy and in cases of a fibrous uterus in which the possibility of malignancy has been eliminated by the history or by a curettage. In cases of hemorrhage at or near the menopause it is considered proper by many radiotherapists to irradiate as for malignancy. Every attempt should be made, however, to eliminate malignancy by a bimanual and visual examination of the cervix. In treating uterine fibromyoma it is immaterial whether the tumor is submucous, interstitial or subserous. A pedunculated fibromyoma is not considered suitable for treatment. A degenerating or strangulated fibromyoma should be removed by surgical procedure, unless there are very definite contraindications to an operative procedure. Fibromyomas of such dimensions that they extend above the umbilicus, or those causing pressure effects, should also be removed surgically. Pelvic infections are a definite contraindication to the use of radium, but this statement does not so strictly apply to the use of the roentgen ray. It has been the author's custom to treat through four 15 by 15 cm. areas, two anteriorly and two posteriorly, the central beam being directed to the uterus and ovaries. The method employed is that advocated by Weatherwax, using 200 kilovolts, 5 milliamperes, 0.5 mm. of copper with 1 mm. of aluminum, and 650 roentgens in the center of the pelvis. At each sitting, 200 roentgens is given over each area, the loss of each interval being made up until the desired number of roentgens has been delivered to the uterus and ovaries. In establishing a premature menopause in the manner described, it should be stated that the patient does not escape the symptoms which usually accompany this change.

Rhode Island Medical Journal, Providence

19: 113-130 (Aug.) 1936

Colics Following Cholecystectomy: Probable Mechanism of Their Production. A. M. Snell, J. M. McGowan and W. L. Butsch, Rochester, Minn.—p. 113.
Observations from the Heart Clinic of the Rhode Island Hospital. C. C. Dustin, Providence.—p. 119.

Southern Medical Journal, Birmingham, Ala.

29: 775-882 (Aug.) 1936. Partial Index

Objectives of Medical Education. D. Lewis, Baltimore.—p. 775.
Functional Point of View in Medical Sciences. G. T. Caldwell, Dallas, Texas.—p. 779.
Present Status of Psychiatry in Medical Education. F. G. Ebaugh, Denver.—p. 784.
Diagnosis and Management of Gonococcic Arthritis, with Emphasis on Use of Ammonium O-Iodoxybenzoate. J. F. Hamilton, Memphis, Tenn.—p. 791.
Treatment of Irritable Colon. J. S. Levy, Little Rock, Ark.—p. 800.
Hypertension. I. W. Cooper and L. Hart, Meridian, Miss.—p. 806.
Erythematous Lupus, Lichen Planus and Psoriasis: Pathologic Trilogy, with Especial Reference to Treatment of Lichen Planus with Pituitrin. J. N. Roussel, New Orleans.—p. 811.
Brain Tumors in Children. J. G. Lyerly, Jacksonville, Fla.—p. 819.
Treatment of Acutely Perforated Duodenal Ulcer by Excision with Pyloroplasty: Report of Fourteen Cases Treated by This Method. J. M. Donald, Birmingham, Ala.—p. 827.
Open Treatment of Peritonitis Secondary to Appendicitis. H. A. Gamble, Greenville, Miss.—p. 834.
Total versus Subtotal Hysterectomy. F. Hagaman, Jackson, Miss.—p. 838.
Logical Eclamptic Therapy Evolved After Nineteen Years' Study in 232 Cases. J. R. Reinberger and P. B. Russell Jr., Memphis, Tenn.—p. 841.
Recent Research on Malaria Plasmodia. H. E. Meleney, Nashville, Tenn.—p. 852.
Some Preliminary Observations on Airplane Dusting for Anopheles Larvae Control. R. B. Watson, Wilson Dam, Ala.—p. 862.
Industrial Relations in Malaria. C. P. Coogle, Houston, Texas; C. Barrow, Savannah, Ga.; W. G. Stromquist, Knoxville, Tenn., and D. Clark, Bodin, N. C.—p. 873.

Texas State Journal of Medicine, Fort Worth

32: 259-318 (Aug.) 1936

The Doctor's Visit. S. R. Roberts, Atlanta, Ga.—p. 266.
Service: A Philosophy of Success. W. B. Russ, San Antonio.—p. 271.
Treatment of Burns: Analysis of 235 Cases. H. Poyner, Houston.—p. 274.
Certain Applications of Bacteriology of Brucella Group to Clinical Problems of Brucellosis. H. A. Kemp, Dallas.—p. 279.
Parthenium Hysterophorus: Antigenic Properties, Respiratory and Cutaneous. I. S. Kahn and Emma M. Grothaus, San Antonio.—p. 284.
Problems in the Management of Allergic Disease. H. E. Prince, Galveston.—p. 289.
*Gonorrheal Endocarditis with Amyloidosis. J. F. Pilcher, Galveston.—p. 292.
Treatment of Sterility. L. J. Glober, San Antonio.—p. 296.
Evolution in Study and Practice of Medicine in Texas in Sixty Years. J. M. Frazier, Belton.—p. 300.
Spirochetosis Icterohaemorrhagica: Report of Three Cases. O. W. Little, Tuscola.—p. 305.

Gonorrheal Endocarditis with Amyloidosis.—According to Pilcher, cases of endocarditis diagnosed as being of gonorrheal origin can be roughly divided into three groups: 1. Those cases in which blood cultures or cultures taken directly from vegetations at necropsy are positive for gonococci can be considered proved. 2. Cases in which there is a definite history of preceding gonorrheal infection, and in which smears from vegetations show gram-negative diplococci, can be considered strongly presumptive. 3. Other cases in which an endocarditis follows an acute gonorrheal infection but in which no bacterial evidence is obtained can be considered no more than probable. The author reviews the literature of gonorrheal endocarditis and reports in detail one of his cases in which the occurrence of amyloidosis, apparently as a result of the infectious process, is worthy of note. Amyloidosis is rather common, and about 80 per cent of cases are due to chronic tuberculosis of lungs or bone. The other most frequent causes of amyloidosis are chronic osteomyelitis, suppurations, syphilis, leukemia and multiple myeloma. The chief point of interest in the reported case is that, as far as can be determined by a careful search of the literature, there is no other case on record in which amyloidosis was caused by gonococcic endocarditis and septicemia. In the absence of tuberculosis or any other of the usual causes of amyloidosis, it is fairly certain that the infectious process caused the condition in this case. There is small chance that the amyloid deposition had begun before the endocarditis, the patient being a normal, healthy young man. This brings to attention another point of interest; that is, the huge deposition of amyloid in this case must have taken place in five months. Although there are no expressions of opinion in the literature as to how long a period is required for the development of amyloidosis, it is usually considered to be a more long-continued process.

Virginia Medical Monthly, Richmond

63: 263-328 (Aug.) 1936

Rocky Mountain Spotted Fever as Found in the East. W. P. Caton, Alexandria.—p. 263.
Expert Testimony and Its Relation to Mental Responsibility and Neurologic Injury. B. R. Tucker, Richmond.—p. 267.
Enuresis in Children. J. V. Bickford, Norfolk.—p. 271.
Perforating Wounds of Chest. J. C. Motley, Abingdon.—p. 274.
Treatment of Inguinal Hernia. E. Bassini, translated by C. R. Robins, Richmond.—p. 279.
History of Obstetrics in Virginia. P. Rucker, Richmond.—p. 283.
Orthopedic Treatment of Infantile Paralysis. A. S. Lloyd, Norfolk.—p. 290.
The Hospital and the Organized Medical Profession. H. F. Sanger, Chicago.—p. 292.
Acute Abdominal Emergencies: Some Diagnostic and Therapeutic Considerations. J. S. Staley, Marion.—p. 296.
Eye Injuries Caused by Stone Splinters: Case Reports. H. L. Mitchell, Lexington.—p. 302.
Apical Systolic Murmur. J. W. Hunter Jr., Norfolk.—p. 303.
*Toxemia of Intestinal Origin and Its Treatment with Castor Oil and Castor Oil Derivatives. M. Schoenbaum and W. A. Moomaw, Richmond.—p. 306.
Eclampsia: Crural Monoplegia of Cortical Origin. W. McMann, Danville.—p. 310.

Treatment of Intestinal Toxemia with Castor Oil.—Schoenbaum and Moomaw show that the colon is the principal focus of infection in toxemia and should receive at least as much attention as the teeth, tonsils and other structures. Many constitutional disturbances as well as those of the abdominal cavity have their origin in a toxic condition of the enteric tract. In this connection the author mentions nervous, hepatic, biliary, circulatory and respiratory disorders, anemias, rheumatism, arthritis, disorders of the skin, backache and other disturbances. He says that the so-called normal flora of the intestinal canal may assume pathologic activities under favorable conditions. The colon bacillus is the agent most frequently responsible for nongonorrheal infections of the genito-urinary system. Measures aimed at the detoxification of a septic colon will often help in solving a difficult diagnostic problem. The theory of intestinal toxemia is supported by clinical experience. In discussing the treatment, the author presents evidence on the detoxifying effect of castor oil and its conversion product, sodium ricinoleate.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

44: 455-506 (Aug.) 1936

Antethoracic Esophagoplasty: Report of Completed Case. T. F. Mullen, San Francisco.—p. 455.
*High Right Transverse Abdominal Incision in Congenital Pyloric Stenosis: Its Value in Prevention of Evisceration. C. W. Brunkow, Portland, Ore.—p. 461.
Biliary Dyssynergia: Cholangiographic Recognition and Its Significance. R. R. Best and N. F. Hicken, Omaha.—p. 467.
Acute Pancreatitis: Report of Six Cases. E. M. Jones, St. Paul.—p. 474.
Plastic Surgery of Ear. H. B. Graham, San Francisco.—p. 478.
Atypical Attenuated Osteomyelitis. J. E. Klein, Chicago.—p. 481.
Concerning Use of Kirschner Wire in Fractured Neck of Femur. D. M. Bosworth, New York.—p. 484.

High Right Transverse Abdominal Incision in Congenital Pyloric Stenosis.—Brunkow outlines a technic in the surgical management of congenital pyloric stenosis. He emphasizes the following points: 1. Supplying adequate tissue fluids by hypodermoclysis and blood transfusion before operation is done. 2. Providing carefully controlled local heat to the baby's body and warmth in both the nursery and the operating room and recognizing the fact that a 4 Kg. infant's heat radiating surface is proportionately twice that of a 72 Kg. adult. The smaller the baby the greater the proportionate surface area. 3. Further avoiding body heat loss by keeping the baby "under cover" during the application of restraints and by eliminating the refrigeration of ether and alcohol baths as a part of the abdominal skin preparation. 4. Employing local anesthesia, because it is considered safer than inhalation anesthesia for starving babies. 5. Employing a high right transverse abdominal incision for the Rammstedt operation as an aid in the local anesthesia method, as well as providing a wound less likely to permit evisceration during convalescence. 6. Maintaining near perfect hemostasis and remembering that a 4 Kg. baby's blood volume is one-eighteenth that of a 72 Kg. adult, and that consequently the total blood loss allowed in an infant should be eighteen times less than that resulting from an abdominal operation in an adult.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

17: 249-334 (Aug.) 1936

Bilirubin Content of Blood and Urobilinogen Content of Urine in Diabetes Mellitus: Note. I. M. Rabinowitch.—p. 249.
Experiments on Immunizing Properties of Undiluted and Diluted Diphtheria Formol Toxoid. W. A. Timmerman and A. C. Brandwijk.—p. 252.
*Studies on Excretion of Urinary Porphyrin in Rheumatic Fever. Eleanor M. Kapp and A. F. Coburn.—p. 255.
Estimation of Phosphatase in Fluoride Blood. J. E. J. Cruse and C. F. M. Rose.—p. 267.
Some Chemical Methods for Detection and Rough Estimation of Agar in Biologic Materials. N. W. Pirie.—p. 269.
Staphylococcic Toxoid in Treatment of Diabetes. R. S. Wale and Kate Madders.—p. 279.
Influenza Virus on Developing Egg: I. Changes Associated with Development of Egg Passage Strain of Virus. F. M. Burnet.—p. 282.
Observations on Effect of Louping Ill Virus on Developing Egg. F. M. Burnet.—p. 294.
Immunologic Relationship Between Kikuth's Canary Virus and Fowl Pox. F. M. Burnet and Dora Lush.—p. 302.
Guinea-Pig Method of Assay of Liver Extract: Note. B. M. Jacobson.—p. 307.
Typhus Group of Diseases in Malaya: Part VI. Search for Carriers. R. Lewthwaite, E. P. Hodgkin and S. R. Savoor.—p. 309.
Purification of Staphylococcus Toxoid. L. B. Holt.—p. 318.
Transmission of Influenza Virus to Hedgehogs. C. H. Stuart-Harris.—p. 324.
Anaerobic Pneumococcus. F. Smith.—p. 329.

Excretion of Urinary Porphyrin in Rheumatic Fever.—The present investigation was undertaken by Kapp and Coburn to determine the type of porphyrin excreted in acute rheumatism and to study the relationship of porphyrinuria to activity of the rheumatic process. Their attention was confined to urinary porphyrins, which were detected and identified by spectroscopic examination of ether extracts. In summarizing the results of their studies they state that: 1. The urine of patients with rheumatic fever contains abnormally large amounts of coproporphyrin, qualitatively indistinguishable by visual spectrometric methods from the porphyrin normally present in the urine of healthy persons. 2. Coproporphyrin isolated from the urine of rheumatic patients has been provisionally identified as isomer III. 3. The urine of rheumatic patients nearly always contains part of the coproporphyrin in combination, presumably with a metal. This combined porphyrin has been observed only sporadically in urines from other sources. 4. The increase of urinary porphyrin appears concurrently with the symptoms of rheumatism. There is no increase following recovery from hemolytic streptococcus throat infections in the absence of a rheumatic attack. 5. The porphyrinuria of acute rheumatism is therefore related to the rheumatic process itself and not to the preceding respiratory infection. The authors discuss the possible significance of these observations.

British Journal of Physical Medicine, London

2: 41-62 (July) 1936

Pigmentation. W. N. Goldsmith.—p. 43.
Radiation of Cavities of Body: Experimental and Clinical Results. S. K. Westmann.—p. 47.
Short Wave Treatment of Pubertal Acne. E. Last and Stein.—p. 50.
Misuse of Summer. Mary E. Ormsby.—p. 51.
Hay Fever and Its Treatment: St. George's Hospital Technic. L. D. Bailey and D. C. Shields.—p. 52.
Occupational Therapy: Methods Used in Convalescent Hospital. J. Cunningham.—p. 53.
Infra-Red Ray Therapy. C. E. Michael.—p. 55.

British Journal of Radiology, London

9: 415-486 (July) 1936

Radiology in Obstetrics: Consideration of Its Dependability. R. E. Roberts.—p. 415.
New X-Ray Tube for 700 Kilovolts and Some Measurements of Penetrating Radiation. A. Bouwers and J. H. van der Tuuk.—p. 431.
High Voltage X-Ray Tubes in the United States of America: Part II. J. Read.—p. 442.
Hereditary and Congenital Large Parietal Foramina. E. D. Irvine and F. W. Taylor.—p. 456.
R-Doses in Primary Mammary Carcinoma. J. H. D. Webster.—p. 463.
Effect of Ultra High Frequency Currents (Ultra Short Waves) Combined with Nonlethal Doses of Radium Radiations on Experimental Rat Tumors. H. J. Taylor.—p. 467.
Cyanosis in Infants: Two Unusual Cases. P. Kerley.—p. 481.

British Medical Journal, London

2: 109-162 (July 18) 1936

Splenomegaly. E. R. Carling.—p. 109.
Rôle of Sympathetic in Sensory Conduction and Certain Neuralgias. W. Harris.—p. 112.
*Treatment of Hemorrhage. I. J. Wood.—p. 115.
Gonococcic Arthritis in Mother and New-Born Infant. Jean M. MacLennan.—p. 121.
Vinyl Ether: New Method of Administration. V. Goldman.—p. 122.

Treatment of Hemorrhage.—Wood asserts that the recent introduction by Marriott and Kekwick of continuous intravenous blood transfusion has provided a new weapon for the treatment of hemorrhage. Patients with hematemesis and melena have been selected, and, although there is as yet not sufficient evidence to show the indications for operation in these cases, it is felt that a strong plea may be advanced for continuous blood transfusion as a valuable aid in treatment. At the beginning of the present investigation patients were given large volumes of dextrose (from 2 to 5 per cent) and physiologic solution of sodium chloride intravenously by the continuous drip method. The fluid was allowed to run in at the rate of 4 or 5 ounces (120-150 cc.) an hour, and the administration was continued for from one to three days. A moderate improvement was noted in most cases. It has been shown, however, that dextrose and sodium chloride both diffuse rapidly through the capillary walls and that dextrose-saline solutions are therefore very inferior to citrated blood in maintaining the restored blood volume after a large hemorrhage. If given in excess they would contribute to the edema. Moreover, the transfusion of saline solution and dextrose produced no rise but occasionally a slight fall in the percentage of hemoglobin, and it remained at a low level for a week or more. Occult blood often persisted in the stools, showing the presence of an ooze from the damaged vessel, which retarded the rise in hemoglobin. The blood urea usually remained elevated for several days, and then, in cases in which recovery occurred, slowly fell. In the fatal cases a further rise took place prior to death. Finally there was a marked tendency for the hemorrhage to recur unless the vessel was ligated surgically. When the contribution of Marriott and Kekwick appeared, their methods were adopted, with minor modifications in the technic of administration. Citrated blood was given at the rate of from 90 to 150 cc. an hour and the hemoglobin was slowly elevated to more than 70 per cent in from twelve to forty-eight hours. After the transfusion was finished the hemoglobin sometimes tended to fall slightly, but finally it rose toward normal. The dramatic changes observed during the continuous transfusion of blood have been described by Marriott and Kekwick, and the present study confirms their reports. A series of cases are described illustrating changes in mental state, hemoglobin percentage and blood urea. It is suggested that the changes in height of the blood urea indicate the extent and rapidity of gastro-intestinal hemorrhage and aid in prognosis and treatment.

2: 163-210 (July 25) 1936

"And the Future." E. F. Buzzard.—p. 163.
Abduction Method: Considered as Exponent of Surgical Principles in Routine Treatment of Fracture of Neck of Femur. R. Whitman.—p. 167.
Shellfish and Public Health. R. W. Dodgson.—p. 169.
Hearing Aids. G. E. Martin.—p. 173.
Unusual Case of Jaundice in Miner. J. A. McKeon and H. C. Brown.—p. 174.
Otholithic Catastrophe: New Syndrome. A. Tumarkin.—p. 175.

2: 211-268 (Aug. 1) 1936

*Effect of Toxic Substances on Blood-Forming Organs, with Especial Reference to Therapeutic Drugs. L. J. Witts.—p. 211.
Physical Methods of Endocrinotherapy. A. P. Cawadias.—p. 215.
Treatment of Hallux Valgus and Rigidus. T. P. McMurray.—p. 218.
Problems of Chance in Clinical Work. D. Mainland.—p. 221.
Visscher-Bowman Test for Pregnancy. Gladys H. Dodds.—p. 224.

Effect of Toxic Substances on Blood-Forming Organs.—Witts finds that the toxic effects on the blood-forming organs of drugs, such as aminopyrine, neoarsphenamine and gold compounds, are usually the result of idiosyncrasy and occur with doses that are well within the ordinary therapeutic limits. In certain cases the patient becomes sensitized to the drug and an allergic type of response occurs. Considerable hardship may result from failure to realize the small dosage that may be responsible for damage to the bone marrow in predisposed individuals, the long incubation period, and the protracted duration of the lesion. The lesions produced in the marrow are briefly reviewed and classified under the headings of regenerative hyperplasia, dysplasia, neoplasia and aplasia.

East African Medical Journal, Nairobi

13: 97-128 (July) 1936

The Medical History of Uganda. A. R. Cook.—p. 99.
Rumination on Research and Eyewash. H. L. Gordon.—p. 110.
Acute Pneumococcic Osteomyelitis of Fifth Lumbar Vertebra. E. J. Blackaby.—p. 120.

Indian Medical Gazette, Calcutta

71: 373-436 (July) 1936

*Atabrine by Injection versus Quinine in a Tea-Garden Practice. H. Flack, D. C. Majumder and K. Goldsmith.—p. 373.
Observations on Relative Value of Atabrine and Quinine as Therapeutic Agents in Malaria. R. Bhattacharyya.—p. 375.
Treatment of Rhinosporidiosis in Man Based on Study of Sixty Cases. F. R. W. K. Allen and M. L. Dave.—p. 376.
Immunologic Methods in Determination of Infection in Random Sample of Hospital Admissions. C. L. Pasricha, G. Panja and S. Lal.—p. 395.
Gold Therapy in Pulmonary Tuberculosis. S. K. Das.—p. 396.
Examination of Seminal Stains in Medicolegal Cases. K. R. Ganguly.—p. 400.

Atabrine versus Quinine.—Flack and his associates made a comparison between atabrine by injection and quinine as antimalarial drugs. The numbers are too small to draw any definite conclusions, but it appears that atabrine by injection acts better than quinine in controlling the clinical symptoms and freeing the peripheral blood of parasites. It is more effective than quinine in subtertian malaria but has hardly any advantage in benign tertian malaria. It has no influence on the sexual forms of the parasite. It has less effect on splenic enlargement than quinine. Complications are negligible. The doses recommended by the makers are adequate for the type of coolies they deal with. As a practical proposition in a tea estate with considerable malaria it is at present too expensive a measure, but for European and Indian staffs they consider it the most reliable drug for subtertian malaria.

International Journal of Psycho-Analysis, London

17: 269-394 (July) 1936

Future of Psychoanalysis. E. Jones.—p. 269.
Effect of the King's Death on Patients Under Analysis. W. R. D. Fairbairn.—p. 278.
The Psychology of Caricature. E. Kris.—p. 285.
Contribution to Analysis of Negative Therapeutic Reaction. Joan Riviere.—p. 304.
Exhibitionism and Exhibitionists. H. Christoffel.—p. 321.
Training Analysis and Control Analysis. Vilma Kovacs.—p. 346.

Journal of Hygiene, London

36: 269-466 (July) 1936

Study of English Diets by Individual Method: Part I. Men. E. M. Widdowson.—p. 269.
Id.: II. Women. E. M. Widdowson and R. A. McCance.—p. 293.
Cancer of Scrotum in the Blackburn Registration District, 1837-1929. S. A. Henry and E. D. Irvine.—p. 310.
Toxicity to Animals of Some Oxidation Products of 1:4 Dioxan: Note. A. Fairley, E. C. Linton and A. H. Ford-Moore.—p. 341.
Serologic Variants of Salmonella Typhi-Murium, with Especial Reference to Salmonella Typhi-Murium Var. Binns. P. R. Edwards.—p. 348.
Natural and Immune Bactericidins for the Gonococcus. Y. B. Abdoosh.—p. 355.
Gas-Producing Variety of Bacterium Alkalescens (Andrewes). J. Bamforth.—p. 363.
Vi Antigen of Bacillus Typhosus: Notes. E. S. Horgan.—p. 368.
Statistical Study of Sex Ratio at Birth. W. T. Russell.—p. 381.
Studies in Declining Birth Rate, Wales and South England. W. J. Martin.—p. 402.
Incidence of Weil's Disease in Fish Workers in Aberdeen. J. Smith and L. S. P. Davidson.—p. 438.
*Boric Acid as Selective Bacteriostatic Agent. E. M. M. Blair.—p. 446.
Incidence of Intrathoracic Tumors in Edinburgh Royal Infirmary: Note. M. El-Gazayerli.—p. 449.
Resistance Developed Against Bacteriophage. R. T. Scholtens.—p. 452.
Influence of Tuberculosis on Development of Brucella Abortus Infection. E. J. Pullinger.—p. 456.

Boric Acid as Selective Bacteriostatic Agent.—Working with boric acid, in the presence of a fermentable substance, Blair found that, while it shows a marked degree of selectivity,

suppressing most strains of Bacillus lactis-aerogenes while allowing a profuse growth of most Bacillus coli strains, it is not unusual to find a strain of Bacillus coli which is susceptible or sensitive to the action of boric acid in a concentration of 0.5 per cent, or a strain of Bacillus lactis-aerogenes which can tolerate boric acid to this extent. A means of overcoming this difficulty can, however, be found when boric acid is used in conjunction with sodium sulfite. By the addition of sodium sulfite to a lactose boric-acid peptone water, it is possible by a suitable combination of these two chemicals to overcome to a large extent the overlapping that occurs in the results when boric acid is used alone and by this means to make possible a more definite line of demarcation between these two organisms. In a medium consisting of 100 cc. of 1 per cent peptone water, 0.25 Gm. of lactose, 0.5 Gm. of boric acid and 1 Gm. of sodium sulfite (anhydrous), the growth of Bacillus coli is but little hampered, while that of Bacillus lactis-aerogenes is inhibited. The medium has been tested on some 494 strains of lactose-fermenting organisms: 450 strains isolated from specimens of water, thirty-six from separate samples of human feces, five from the excreta of cattle, one from a milk supply, one from a specimen of urine and one from a specimen of vomit. The author found that the medium has a marked selective action. It gives satisfactory readings within twenty-four hours of incubating at 37 C. The author is of the opinion that all strains capable of growth in this medium may be regarded as of definite sanitary significance; they are most likely of fecal origin, while those which fail to grow are of minor sanitary importance. He hopes that the boric sulfite test may prove a useful adjunct to the bacteriologic examination of samples of water.

Journal of Pathology and Bacteriology, Edinburgh

43: 1-232 (July) 1936. Partial Index

Blood Changes in Mice Bearing Experimental Sarcomas: (A) Sarcomas Induced by Derivative of 1: 2: 5: 6-Dibenzanthracene; (B) Sarcomas Produced by Cell-Free Filtrates of Mal. Sarcoma 1. L. Dorothy Parsons.—p. 1.

Origin of Fibrous Connective Tissue in Human Body. T. D. Day.—p. 49.

Metastatic Tumor of the Breast: Report of Case. E. K. Dawson.—p. 53.

Generalized Lymphatic Carcinosis ("Lymphangitis Carcinomatosa") of Lungs. T. T. Wu.—p. 61.

Antagonism in Development of Malignancy in Two Different Organs. W. Cramer.—p. 77.

Supravital Staining of Leukocytes in Normal and Leukemic Blood. L. E. H. Whitby and M. Hynes.—p. 91.

*Rapid Method of Measuring Erythrocyte Diameters. M. Hynes and L. C. Martin.—p. 99.

Endocarditis Due to Diphtheroid Bacillus Structurally and Culturally Resembling Diphtheria Bacillus: Case. J. Sutherland and R. A. Willis.—p. 127.

Primary Endothelioma of Pericardium. S. McDonald Jr.—p. 137.

Malignant Hemangio-Endothelioma: Report of Two Cases. R. F. Ogilvie and I. Mackenzie.—p. 143.

Observations on Changes in Plasma Proteins in Experimental Tubular Nephritis, With and Without Edema. E. G. Oastler and S. L. Tompsett.—p. 151.

Attempts to Produce Immunity Against Yellow Fever with Killed Virus. G. M. Findlay and R. D. Mackenzie.—p. 205.

Epidermal Heteromorphosis of the Vaginal Vault. G. W. Nicholson.—p. 209.

Rapid Method of Measuring Erythrocyte Diameters.—Hynes and Martin describe a method of producing a diameter distribution curve of erythrocytes, which permits direct measuring of cell images without pencil outlining. The optical system that they employ consists of a powerful source of light, a 100 candle power Pointolite contained in a light-proof box. The light is condensed by a lens system on the mirror of the microscope, a one-twelfth inch oil immersion lens and a × 20 eyepiece being used. Extraneous light is excluded by a conical black cloth shield. Magnification varies with the distance of the screen from the eyepiece of the microscope and is controlled by a shelf, adjustable for height, and by three adjustable screws bearing the screen. It is rapidly established by incorporating a micrometer scale in the eyepiece of the microscope and using a stage micrometer in conjunction. Supposing that x divisions of the eyepiece micrometer equal 0.05 mm. on the stage micrometer, using the lenses stated, then the image of these x divisions projected on the screen must equal 10 cm. at 2,000 magnification. Alternatively, the image of the stage micrometer may be projected on the screen and measured directly. To avoid distortion of images, the screen must be truly horizontal and only cells in the middle of the field must be measured. Erythrocyte measurement by this method depends on the assumption that the mean diameter of an erythrocyte, whatever its shape, is the same as the diameter of a circle of equal area. With circular erythrocytes the estimation is simple; with poikilocytes it is necessary to find a circle on the protractor such that the area of the erythrocyte outside the circle is equal to the area of circle unfilled. With a little practice it is possible to select the appropriate circle with surprising speed and accuracy. The authors demonstrate that by the use of this method the mean diameter and cell area figures may be obtained with a high degree of accuracy. The practical differences in result as compared with those obtained by the Price-Jones technic are negligible. The considerable saving of time by the use of this technic justifies its use in routine hematologic work.

Journal of Tropical Medicine and Hygiene, London

39: 173-184 (Aug. 1) 1936

Lymphogranuloma Inguinale. C. L. Wilmoth.—p. 173.

Treatment of Schistosomiasis. B. S. Bindra.—p. 175.

Lancet, London

2: 115-170 (July 18) 1936

Paroxysmal Hemoglobinurias. L. J. Witts.—p. 115.

*Influenza Infection of Man from Ferret. W. Smith and C. H. Stuart-Harris.—p. 121.

Intestinal Stricture and Its Association with Pernicious Anemia. J. C. Hawksley and E. Meulengracht.—p. 124.

Technic of Spleen Puncture. L. E. Napier.—p. 126.

*Sodium Chloride in Diphtheria. A. Maclean.—p. 129.

Excretion of Drugs: Its Influence on Therapeutic Results, with Especial Reference to Antimony Treatment of Schistosomiasis. M. Khalil.—p. 132.

Influenza Infection of Man from Ferret.—Smith and Stuart-Harris report that, forty-five hours after contact with sick ferrets, Stuart-Harris went down with a typical attack of influenza. Throat and nose washings were taken twenty-four hours after the onset and again on the fourth and fifth days of the illness. In each instance the washings were ground in a mortar with a little quartz powder to break up shreds of mucus and then centrifugated. The supernatant fluid was used for the animal tests. Blood was also withdrawn on the fourth day when the patient's temperature was at its maximum, citrated and tested on a ferret. Fortunately samples of the patient's serum, obtained a few months before his illness, were available. Further samples were obtained on the third, eighth, sixteenth, thirty-first, forty-fourth and eighty-first days after the onset of symptoms and titrated by the mouse protection test. The technic of antibody titration used was identical with that described by Laidlaw and his co-workers. The results show that the patient possessed no demonstrable neutralizing antibodies against human strain virus at the time of infection. Following the illness there was a steady rise of antibodies. It is possible that they began to appear as early as the third day, when the nasopharynx still contained virus. There is no doubt that a decline of circulating antibodies had set in by the forty-fourth day, but experiments suggest that this decline is very gradual. Another experiment shows that the patient had antibodies against the swine strain of virus prior to his illness. It is not surprising that these were of no avail in preventing his infection, in view of the total failure of the standard swine strain serum to prevent mouse infection with the strain of virus recovered. Although the patient was engaged about the time of infection in collecting material from cases diagnosed as influenza, the later clinical and bacteriologic investigations led to the conclusion that the epidemic disease was not influenza. The animal tests of the samples collected fully confirmed this conclusion. The patient's nasopharyngeal washings readily infected mice, producing at the onset in all the animals inoculated extensive lung lesions. The fact that animal passage strains of influenza virus may retain their infectivity for man is of some practical importance. Heretofore no attempt has been made to immunize laboratory workers exposed to such infection, but it is considered that the time may have arrived when this should be done in the case of those who possess no

demonstrable virus neutralizing antibodies. It is quite conceivable that a case of laboratory infection might be the starting point of an epidemic.

Sodium Chloride in Diphtheria.—Maclean gives an account of an investigation carried out in Ruchill Hospital, Glasgow, in cases of diphtheria to observe the effect the administration of sodium chloride would have on the results of treatment. The cases were divided into four main groups according to the severity of the acute stage of the illness. Each patient admitted to the diphtheria wards was placed in one of two series. The first was treated in the usual manner employed in the hospital; the other received a definite additional ration of sodium chloride. In groups I, II and III, sodium chloride was administered to each patient in one series in the form of a teaspoonful of common salt by mouth three times daily for the first three weeks of hospital residence. All the patients in these three groups recovered. In group II the better results occurred in the cases in which extra sodium chloride was given, but again there was nothing significant. In group III the better results were noted in the series of cases in which extra sodium chloride was given, and there was distinct statistical significance in these results. It is noteworthy that this was so in spite of the tendency in group III for a greater proportion of the cases to be of a less severe type in the acute stage in the series in which extra sodium chloride was not given than in the other series. A number of patients in group IV were given salt by mouth as in the other groups; in others the method employed was to administer daily for a period of three weeks after admission 30 cc. of 5 per cent saline solution intravenously slowly through a hypodermic needle. In a third set of cases in which the acute stage was of a more critical nature and feeding by mouth was precluded by vomiting, continuous rectal dextrose saline solutions were given and maintained until signs of acute toxemia had passed off. Taking group IV as a whole, a definite, though insignificant, improvement is shown in the series of patients who received extra sodium chloride. Consideration of these results leads to the conclusion that the administration of extra sodium chloride to a series of patients with diphtheria is associated with an improvement as compared with a series that does not receive extra sodium chloride. The author points out that the observation that the administration of sodium chloride to patients with diphtheria is associated with better results is in accord with expectations if the view is accepted that in diphtheria there is a considerable deficiency in the secretion of the adrenal cortex. In support of this view it has long been recognized that adrenal hemorrhage is common in fatal diphtheria. Definite evidence has not yet been produced of the value that injections of adrenal cortex extract would have on the acute stage of diphtheria, and with the present prohibitive cost of potent extract an adequate trial would be very expensive. It seems, however, that sodium chloride is distinctly beneficial.

2: 171-236 (July 25) 1936

"And the Future." E. F. Buzzard.—p. 171.
Septic Endocarditis. Horder.—p. 174.
Benign Spontaneous Pneumothorax. I. Gordon.—p. 178.
Chromophobe Adenoma of Pituitary Associated with Cushing's Syndrome. C. J. Fuller and Dorothy S. Russell.—p. 181.
*Changes in Intervertebral Disks Following Lumbar Puncture. F. J. Milward and J. L. A. Grout.—p. 183.
The Tomograph: Its Use in Pulmonary Tuberculosis. J. B. McDougall.—p. 185.
Bilateral Massive Collapse of Lungs. A. K. Miller.—p. 187.

Changes in Intervertebral Disks Following Lumbar Puncture.—Milward and Grout relate that during the last two years five patients attending the Chesterfield Royal Hospital who had been operated on under spinal anesthesia complained at varying intervals after operation of pain in the back and occasionally of pain in the lower limbs. The roentgen examination revealed in all definite and progressive changes localized in one intervertebral joint. All complained of severe pain in the back, either partially or completely preventing them from walking or sitting up. All showed on examination that the lumbar spine was held rigid by muscle spasm in the flexed position. There was marked tenderness over one or all the spinous processes of the second, third and fourth lumbar vertebrae. In one patient the fully developed lesion was accompanied by retention of urine. In two cases there was intermittent backache of a mild character during the latent period. The roentgen examinations all showed more or less similar changes: (1) a progressive arthritis localized to one intervertebral joint, (2) loss of joint space, (3) rapid progress of the lesion and (4) new bone formation linking up the articular edges of the bodies of the adjacent vertebrae. When the condition was recognized, the treatment adopted was fixation of the lumbar spine in extension with a full length ambulatory plaster jacket as for compression fractures. The authors think that the most satisfactory theory is that suggested by Pease—that the condition is due primarily to injury to the intervertebral disk, with secondary changes in the vertebral bodies. Pease suggested that the needle actually bored a hole in the annulus fibrosus through which the nucleus escaped. This would seem possible in children and would explain the early loss of joint space and the progressive nature of the lesion. Although it is conceivable that such a process may take place in the adult, the more likely explanation is that the trauma resulting from the impinging needle in the fibrous ring causes an inflammatory reaction with a consequent weakness in the fibrous wall permitting of a gradual escape of the nucleus pulposus. This is borne out by the x-ray appearances in three of the cases.

Medical Journal of Australia, Sydney

2: 1-32 (July 4) 1936

Primary Bronchogenic Carcinoma. G. Halloran.—p. 1.
Dental Decay as Index of Malnutrition. P. A. Earnshaw.—p. 4.
Dental Concept of Oral Infection. R. P. Rheuben.—p. 13.
Preliminary Treatment in Relation to Therapeutic Irradiation of Mouse Tumors. W. Moppett.—p. 15.

2: 33-68 (July 11) 1936

Defense of the Civilian Population Against Gas. P. R. Weldon.—p. 33.
Preparation and Testing of Surgical Catgut. F. Eleanor Williams.—p. 39.
Chronic Gastritis. H. C. R. Darling.—p. 45.
Antemortem Clots in Chambers of the Heart. J. B. Cleland.—p. 50.

South African Medical Journal, Cape Town

10: 391-430 (June 13) 1936

Anemia Problem in Southern Rhodesia. W. K. Blackie.—p. 393.
Aim of Surgery in Treatment of Visceral Pain. W. Welchman.—p. 398.

10: 431-462 (June 27) 1936

Psychoneurosis. D. A. van Binnendyk.—p. 433.
Etiology of Peptic Ulcer. P. Leftwich.—p. 436.
Medical Contracts in State Insurance. J. Collie.—p. 439.

10: 463-490 (July 11) 1936

Preliminary Results of Measurements of Solar Radiation at Durban and Nelspoort Sanatorium. G. Riemerschmid.—p. 463.
In Vitro Cultivation of Filtrable Viruses, with Particular Reference to Vaccine. R. A. Alexander.—p. 467.
Visceral Afferent Pathways. H. Zwarenstein.—p. 471.
Nuclear Division in Sporozoites of Plasmodium. Botha de Meillon.—p. 474.
Note on History of Bilharziasis in South Africa. F. G. Cawston.—p. 475.
Primary Carcinoma of Lung. T. Schrire.—p. 475.
Cancer in South African Natives. M. des Ligneris.—p. 478.
Outbreak of Tick-Bite Fever. J. H. S. Gear and C. Bevan.—p. 485.
Retrograde Intussusception of Jejunum Following Gastrojejunostomy: Report of Case. B. J. P. Becker.—p. 489.

Tubercle, London

17: 481-528 (Aug.) 1936

Dispensary Organization in England. N. Tattersall.—p. 481.
Dispensary Organization in London. F. J. Bentley.—p. 490.
Dispensary Organization in Holland. M. R. H. Van Den Berg.—p. 492.
Work of Tuberculous. F. Bezançon.—p. 493.
Statistical Interpretation of Data in Experimental Tuberculosis. W. N. Berg.—p. 496.
*Standard Method for Testing Antituberculosis Vaccines. W. N. Berg.—p. 502.

Testing Antituberculosis Vaccines.—Berg points out that a standard or official method of testing a proposed antituberculosis vaccine is not available at present. Outlines are offered with the hope that other workers will revise them. A workable plan will then have been evolved which will enable workers in different laboratories to test the same vaccine by the same method. The author says that until recently the "longevity test" seemed the method of choice. In a second method lately used, principal animals and controls are killed at the same time after

infection and the character and distribution of lesions are compared. It is claimed that this "lesion distribution test" correlates well with the longevity test. However, since physicians will expect a proposed vaccine to protect children against the effects of accidental reinfection as evidenced by greater longevity, the lesion distribution test is not applicable here. The author describes a longevity test with guinea-pigs. In his proposed method of testing antituberculosis vaccines, the main points are: (1) selection of a highly virulent strain of human tubercle bacillus through virulence tests in cooperating laboratories; (2) use of two infection doses, small in weight but sufficient to kill all controls in about 100 days average, and (3) statistical interpretation of the difference between mean (or average) days of life of immunized and control animals.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

52: 1151-1210 (July 13) 1936. Partial Index

Bilateral Cubital Paralysis in Course of Serofibrinous Pleurisy. F. Codvelle, L. Ferrabouc and J. Henrion.—p. 1152.
*Special Character of Gastric Disorders in Course of Grain Alcohol Polyneuritis. M. Villaret, F. Moutier, L. Justin-Besançon and H. P. Klotz.—p. 1155.
Liver in Alcohol Polyneuritis. M. Villaret, L. Justin-Besançon and H. P. Klotz.—p. 1159.

Gastric Disorders in Alcoholic Polyneuritis.—Villaret and his collaborators call attention to the early appearance, constancy and other specific characteristics of gastritis accompanying alcoholic polyneuritis. Some gastritis was, in fact, observed in fifty of their cases of polyneuritis. Furthermore, it preceded the appearance of the neuritis in all instances, occasionally by a few weeks but more often by several months. In forty-five of the fifty cases it was possible to note an abnormality of the gastric secretion. This was always in the same direction and consisted in achlorhydria (thirty-three cases) and a marked hypochlorhydria (twelve cases). When gastroscopic examination was performed early enough, definite lesions of the stomach were seen. Most frequently this consisted in an atrophic gastritis, which was especially characterized by a shallowness of the folds of the stomach. Furthermore, the motility of the stomach, which was especially active in the slight cases, was absent or practically absent in those with advanced atrophy. It was also noteworthy that improvement of the gastritis preceded that of the neuritis and that it was possible to observe a normal gastroscopy during persistence of the neuritic lesions.

Presse Médicale, Paris

44: 1353-1368 (Aug. 26) 1936

Heart Sounds. B.-A. Houssay.—p. 1353.
*Anesthesic Infiltration of Thoracic Chain. P. Wertheimer and A. Trillat.—p. 1356.

Anesthesia of Thoracic Chain.—Wertheimer and Trillat, impressed by the inconstancy of effect produced by infiltration of the stellate ganglion as compared with that of the lumbar region, attempted an investigation of the anatomic relations and improvement in technic that might favorably affect the results. Two conditions are necessary to make it possible to infiltrate correctly a sympathetic chain or a ganglion. The first consists in determining the serous landmark by which the needle may be placed at the edge of the ganglion. The second presupposes a soft cellular tissue allowing the injected liquids to bathe the nearby nervous elements. These two conditions are realized by the upper segments of the thoracic chain. The point for penetration of the needle is situated from 5 to 6 cm. from the summit of a spinous process. The needle traverses the second intercostal space. It is well to infiltrate the superficial tissues by an injection made with a fine needle, since this avoids the pain of passing the larger needle through the cutaneous tissues. The needle is directed forward and a little down to a depth of from 2 to 3 cm. and is halted by bony contact. The point of the needle is then against the neck or the head of the rib or on the lateral face of the vertebral body. The needle must be withdrawn a few millimeters and from 10 to 15 cc. of solution injected. The latter infiltrates the cellular space surrounding the sympathetic chain. By this technic it is easy to introduce the needle in the desired area and yet to avoid the danger of puncturing the pleura. They have never observed any accidents from this technic. The indications for such treatments may be divided into painful disorders of the upper limb of physiopathologic origin, arteritis of the upper limb and bronchial asthma. In some of these conditions the authors were successful in relieving the symptoms. They were, however, especially interested in proving that infiltration of the thoracic chain high up satisfies the technical rules and therapeutic necessities, which infiltration of the stellate ganglion only partially supplies.

Schweizerische medizinische Wochenschrift, Basel

66: 817-852 (Aug. 29) 1936. Partial Index

*Fibroplastic Parietal Endocarditis with Eosinophilia of Blood. W. Löffler.—p. 817.
Pseudosyphilitic, Subacute Hilifugal Bronchopneumonia in Undernourished Children. G. Fanconi.—p. 821.
*Polyavitaminosis in Nursling Fed with Fat-Free Dry Milk. E. Wieland.—p. 826.
Elimination of Vitamin C in Tuberculous Children. J. L. Burckhardt and F. Weiser.—p. 832.
Bacteriology of Anaerobic Sepsis. A. Grumbach, A. Lemierre and J. Reilly.—p. 834.
New Observations on Meningo-Encephalomyelitis Caused by Animal Parasites. B. Galli-Valerio.—p. 836.

Fibroplastic Parietal Endocarditis with Eosinophilia.—On the basis of observations in two cases which had a considerable resemblance, Löffler directs attention to a peculiar disease entity, a fatal, subacute fibroplastic parietal endocarditis of the ventricles (the valves remain free), with severe eosinophilia of the blood but with complete intactness of the pericardium. As the result of the fact that the influx of the blood into the right ventricle is made more difficult by the parietal endocarditis, a stasis develops which resembles greatly that of Friedel Pick's syndrome. In both patients the disease was characterized by the absence of febrile temperatures, although there was the possibility of a febrile reaction from pulmonary infarcts in one case. Regarding the etiology, the author says that in one case Streptococcus viridans was demonstrable but that in the other case all cultural examinations of the blood, the puncture fluids and the organs remained negative.

Polyavitaminosis in Nursling Fed with Fat-Free Dry Milk.—Wieland reports a polyavitaminosis (keratomalacia and Barlow's disease) in a nursling, aged 6½ months. Because the parents of the child had an exaggerated fear of milk crusts, they had fed the child, without a doctor's advice, for six months with a fat-free dry milk. This resulted in an A avitaminosis (keratomalacia), which was preceded by a latent stage of two months' duration during which the nursling showed no increase in size or weight. The complicating Barlow's disease was probably the result of a lowered vitamin C content of the dry milk preparation and also of an insufficient utilization of the offered vitamin C as a result of the total lack of vitamin A in the food and in the organism. The combined administration of vitamins A and C resulted in complete clinical cure, except that a corneal lesion (leukoma adhaerens) remained on the left eye. The author stresses that this observation represents a new warning against the dangers involved in the prolonged use of special milk preparations, intended to be used only for a short time, for therapeutic purposes.

Chirurgia degli Organi di Movimento, Bologna

22: 183-284 (Aug.) 1936. Partial Index

Birth Injuries of Shoulder Joint. O. Scaglietti.—p. 183.
Detachment of Os Acetabuli (Os Cotyloideum Superius): Case. G. De Luca.—p. 234.
Tendon Transplantation in Therapy of Radial Paralysis: Physiologic Aims. A. Bonola.—p. 239.
Roentgen Aspects of Old Fractures of Styloid Process of Ulna and "Triangular Bone of Carpus." G. Boriani.—p. 255.
Alcoholization of Intercostal Nerves in Therapy of Fractures of Ribs. F. Rabboni.—p. 263.
*Cerebrospinal Fluid in Vertebral Arthritis. L. Bocchi.—p. 273.

Cerebrospinal Fluid in Vertebral Arthritis.—Bocchi made examinations of the cerebrospinal fluid in fifty patients suffering from rachialgia in vertebral arthritis. The etiologic diagnosis was beyond question in all cases because the clinical symptoms and roentgenograms which have been previously described as characteristic of vertebral arthritis existed in all cases, and hyperemia by means of Bier's hot air treatment and immobilization of the patient gave satisfactory results in the author's cases. The lumbar punctures were harmless and reduced pain. The author states that there are no modifications

of the cerebrospinal fluid in vertebral arthritis. The examination of the fluid is of diagnostic value in cases of rachialgia of doubtful origin. Alterations of the cerebrospinal fluid in rachialgia indicate involvement of the nervous system or of the meninges. The nervous disturbance may cause clinical symptoms of vertebral arthritis in the absence of the latter or they may develop as complications in vertebral arthritis.

Diagnostica e Tecnica di Laboratorio, Naples

7: 241-320 (April 25) 1936

Behavior of Putrid Substrata Used as Cultural Mediums for Certain Dysentery Bacteria. G. Morselli.—p. 241.
*Practical Value of Ucko's Takata-Ara Modified Test for Function of Liver. G. Cozzutti.—p. 249.
Qualitative Analysis of Agglutinins in Course of Typhoid Fever. F. Casanova and L. Bruni.—p. 259.
Micromethod for Determination of Galactosemia. B. Della Maggiore. —p. 273.

Ucko's Test for Liver Function.—Ucko's modified technic for performing the Takata-Ara test is described in the *Comptes rendus des séances de la Société de biologie* **118:**534 (No. 6) 1935. The test is a precipitation reaction produced by mercury in serum of hepatic patients. According to Ucko the test is of diagnostic value in liver diseases. A strongly positive reaction (third degree of intensity reaction) is, in his opinion, an almost certain sign of liver cirrhosis. Cozzutti performed the test in 433 patients suffering from several diseases without involvement of the liver and in eighty-three patients suffering from liver diseases. As a rule it gave negative results in all patients in the first group and more or less positive results in the second. Strongly positive reactions (third degree intensity reaction) were obtained in liver cirrhosis and in syphilis of the liver. In general, the results of the test agreed with those of induced hyperglycemia and also with the clinical evolution of the disease. In some cases the results of an anatomopathologic study verified those previously given by the test. Cozzutti concludes that Ucko's test is of practical value as a preliminary or complemental test for function of the liver, especially that of liver proteosynthesis, but that it is not a specific test for liver cirrhosis.

Minerva Medica, Turin

2: 193-216 (Sept. 1) 1936

Innervation of Carotid Sinus: Histopathologic Studies. G. M. Rasario. —p. 193.
*Behavior of Blood Picture, Especially Eosinophils, in Rheumatic Arthritis Under Action of Colloidal Sulfur Treatment. F. De Matteis and G. Verdolini.—p. 201.
*Variations of Amount of Complement in Blood Serum in Course of Fangotherapy. S. Battistini, A. Robecchi and A. Silvani.—p. 205.

Eosinophils in Arthritis Under Colloidal Sulfur Treatment.—De Matteis and Verdolini studied the behavior of eosinophilic leukocytes, following parenteral administration of colloidal sulfur in patients suffering from rheumatic arthritis and in normal persons. The treatment caused complete eosinophilia in arthritic patients and complete eosinopenia in normal persons. The author believes that the action of colloidal sulfur on eosinophils depends on the reaction of the bone marrow, which reaction is in relation with the presence or absence of constitutional sympathetic disturbances. Owing to the presence of constitutional sympathetic disturbances in patients suffering from arthritis, colloidal sulfur causes a reaction of allergic sensitization with consequent stimulation of the bone marrow to an abundant production of eosinophils and eosinophilia. In normal persons, owing to the absence of sympathetic disturbances, the reaction of the bone marrow following the administration of colloidal sulfur is one by which the production of eosinophils is inhibited. The latter reaction accounts for the production of eosinopenia in normal persons, after administration of colloidal sulfur.

Complement in Blood Serum in Course of Mud Therapy.—Battistini and his collaborators found that the amount of complement in the blood serum in the course of rheumatic fever is diminished in 50 per cent of the cases and that there is a parallelism between the amelioration of the clinical symptoms and the increase of the amount of the complement in the blood serum. The authors made determinations of the variations of the complement, before and after mud therapy, in twenty-six patients suffering from chronic polyarthritis of different types and from rheumatic fever. The treatment consisted in fifteen applications of thermal muds. The amount of the complement, in patients suffering from chronic polyarthritis, was normal before the therapy and did not change after it. The amount of the complement was greatly diminished (in some cases up to complete disappearance), before the treatment, in patients suffering from rheumatic fever and diminished still more after it. The lower figures were obtained in cases in which the test was performed shortly after subsidence of the acute attack, when the clinical symptoms and sequels left by the disease were still noticeable. The authors believe that their results prove the existence of a relation between complement and rheumatic fever and also between complement and the clinical symptoms of the disease. The diminution of the complement, after mud therapy in patients suffering from rheumatic fever, is caused by a reaction of the organism to the treatment which manifests itself in the reappearance of the clinical symptoms. The results obtained by the authors point out also the sensitivity of the test which showed the changes of the amount of complement paralleling the clinical symptoms, although the latter evoluted only to a small degree in the authors' cases.

Arquivo de Patologia, Lisboa

7: 153-384 (Dec.) 1935

Pathologic-Anatomic Contribution to Problem of Sepsis. F. Wohlwill. —p. 153.
Tumors of Cutaneous Glands. H. Parreira.—p. 244.
*Determination of Labor. J. Fontes.—p. 283.

Determination of Labor.—Fontes reviews the follicular, the corpus luteum, the hypophyseal and other theories advanced to explain the phenomenon of labor. Investigation led him to believe that labor is due to an action exerted by the particular state of the musculature and the uterine innervation at this moment. The distention produced by the egg has undoubtedly a stimulating action on uterine contractions. This distention is similar to that which the blood exerts on the heart. It is, however, impossible to explain the determination of labor simply by uterine distention. The author was able to find an oxytocic substance for the uterus of the guinea-pig in the blood of a woman in labor. This substance produces rhythmic and energetic contractions of the uterus for hours. When two horns of the same uterus are placed in oxygenated warmed Ringer's solution in separate containers and to one is added 1 or 2 cc. of defibrinated blood from a woman in labor and to the other the same quantity of blood from a woman not in labor or from a man, this oxytocic action is readily visible. It was also observed that a woman's blood loses this property a few hours after labor ceases. He believes therefore that the placenta perhaps plays a part in the determination of labor. In support of this view he found that placental extracts exert a definite oxytocic action, while muscular extracts prepared with the same technic are ineffective. He injected placental extracts into female guinea-pigs at term and was able to verify the fact that gestation was thereby interrupted.

Semana Médica, Buenos Aires

43: 485-552 (Aug. 20) 1936. Partial Index

Puerperal Fever. J. B. González.—p. 485.
Postoperative Pulmonary Infarct: Case. E. J. Puyó Villafañe.—p. 503.
*Ozone Treatment in Anthrax. S. Pribluda.—p. 510.
Complete Prolapse of Uterus: Case in which Coulin's Operation was Performed. R. Fellner.—p. 526.
Mioma of Vagina: Case. Ofelia Beviacqua.—p. 531.
*Magnesium Sulfate in Cough. A. V. Freyre.—p. 537.
Surgery in Ovarian Dysmenorrhea. M. Reyes.—p. 545.

Ozone Treatment in Anthrax.—Pribluda reports satisfactory results from pure ozone of high concentration in the treatment of anthrax. He has treated six patients, some of whom were suffering from grave forms of the disease. The injections, which may be given intravenously, subcutaneously or intramuscularly, should be made slowly. For intravenous injections the patient lies at rest, after previous administration of morphine and camphor in oil. The quantity of ozone to be injected intravenously varies between 25 and 250 cc. When the injection is made by the intramuscular and subcutaneous routes, an infiltration of the gas is made at the peri-inflammatory zone. The orifice of puncture is covered with collodion to prevent reflux of the injected gas. The quantity of gas to be injected varies between 20 and 400 cc. The superficial application of

ozone is made by means of a funnel covering the anthracic zone and connected with the ozone generating apparatus. This is done in order to contact the inflammatory zone with an atmosphere of pure concentrated ozone, under light pressure, for from five to fifteen minutes. The author concludes that the treatment by ozone is efficacious in anthrax. It results in immediate sedation of pain, great reduction of the evolution period, diminution of the malignant condition of the disease and improvement in the general condition. The treatment is simple, harmless and painless. It can be given to ambulant patients, who are able to resume work shortly after having been treated. The scars left by anthrax treated by ozone are not deforming.

Magnesium Sulfate in Treatment of Cough. — Freyre resorted to hypodermic injections of magnesium sulfate in the treatment of sixty children suffering from asthmatic bronchitis, whooping cough and spasmodic cough of uncertain etiology, with or without vomiting. The dose varies between 1 or 2 cc. of a 15 per cent solution of magnesium sulfate. The injections are given every day or at intervals of two or three days, according to the seriousness of the disease. In all the patients treated by the author (except two suffering from asthmatic bronchitis) the treatment produced antispasmodic and sedative effects that lasted for five or six days. The asthmatic and spasmodic crises and the whooping paroxysms and vomiting were controlled generally from the first injection and the patients began to convalesce after from one to three injections. No patient in the author's group showed signs of general or local intolerance and no complications set in. The treatment is harmless and easy to perform. Cystitis, nephritis and meningitis are contraindications. The development of respiratory paralysis is not likely. It would be the result of an overdose of magnesium sulfate and would indicate an immediate intravenous or intramuscular injection of calcium chloride or a subcutaneous injection of atropine.

Kinderärztliche Praxis, Leipzig

7: 293-344 (July) 1936. Partial Index

*Peculiar and Not Hitherto Described Phenomenon of Prophylaxis of Measles with Normal Blood. F. Goebel.—p. 293.
Leukemic Articular Symptoms During Childhood. J. Krafft.—p. 295.
Hanganatziu-Deicher's Reaction in Diseases of Lymph Nodes During Childhood. E. A. Voss.—p. 299.

Prophylaxis of Measles with Normal Blood.—Goebel directs attention to the possibility of immunizing against measles by means of normal blood. He reports that a child, aged 1 year, showed the prodromes of measles, September 27. September 30 he injected 35 cc. of maternal citrate blood into the thigh of the brother, aged 5, who had remained extremely delicate after an attack of empyema. During the first few days the boy felt well, but on October 7 (the eleventh day of his incubation period) he had fever, a painful swelling of the thigh and enlargement of the inguinal glands. However, on the following day the local symptoms had almost completely disappeared and the fever showed no further increase. The day after that, nothing more was noticeable and, although the boy had not been isolated from his sister, he did not develop measles. The author mentions several other cases in which he made similar observations. In discussing the reaction he points out that active immunity against measles is a virucidal immunity. Convalescent serum as well as normal blood has a virucidal action. Aside from the convalescent serum of poliomyelitis, the serum of measles is perhaps the only virucidal serum of clinically demonstrated action. As a rule it intercepts the virus, which circulates in the blood, and destroys it there without local reaction. In the described cases there developed a local reaction for two reasons: 1. The virucidal antibodies of the injected blood remained entirely or partly localized, just as in uninfluenced measles this binding on the skin produces the cutaneous exanthem in the same manner as it comes to the formation of an area in case of vaccination. In all the cases observed by the author, the reactions appeared on the tenth or eleventh day of incubation; that is, at the time of onset of the prodromes of measles. Since at this time the antibodies of the infected organism commence their activity, it is possible that in this process there is an addition of passive and active immunity. The author is unable to give a definite explanation as to why the antibodies remained localized in these cases. However, he points out that an allergic factor might be involved. (The first two children were from an allergic family.) Moreover, he thinks that the trauma involved in the introduction of relatively large quantities of blood might be of some significance; it may have retarded the resorption.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

102: 257-364 (July) 1936

Eclampsia and Premature Detachment of Placenta. K. De Snoo.—p. 257.
Late Injuries of Vascular System After Eclampsia and Preeclampsia. M. Nuri.—p. 282.
*Ventrosuspension of Uterus and Its Permanent Results. W. Sigwart. —p. 286.
Naevus Teleangiectaticus and Pregnancy. L. Wirth.—p. 298.
*Sclerema Neonatorum and Its Treatment with Thyroxine. E. Schulze. —p. 303.
Persistent Thymus and Delivery. H. Kramm.—p. 311.
*Intracranial Hemorrhages in the New-Born. K. Hollósi.—p. 317.
Birth in Knee-Elbow Position (Without Support for Perineum). S. A. Fraymann.—p. 324.

Ventrosuspension of Uterus and Its Results.—Sigwart says that for a number of years he employed the operation of Doléris in the modification of Bumm. However, this method did not entirely satisfy him. It was his aim to put the uterus as much as possible into the physiologically suspended anteverted flexed position, to see to it that the vesico-uterine excavation would retain its normal basin shape, to prevent adhesions between the round ligament and the long abdominal muscles, and to effect a firm and permanent connection between the ligaments and the fascia. He uses Pfannenstiel's incision. After the uterus has been detached from its adhesions and after the necessary interventions on the adnexa have been completed, so that the peritoneum can be closed, the ventrosuspension is done. He grasps the round ligament on both sides, approximately 3 or 4 cm. away from the uterine attachment, by means of a Kocher clamp. Then he pierces with another clamp the peritoneum laterally to the rectus muscle, where underneath the severed fascia of the internal oblique muscle a small triangle of peritoneum lies free, but he carefully avoids the small vessels passing there. He directs the ligament toward the latter clamp, grasps it and, following removal of the first clamp, he pulls it through the peritoneum. The same is done on the other side. The transverse section of the fascia is so deep downward and so long that the ligament will lie directly in the angle of the fascial incision. Then it can be exactly determined how far the loops of ligament have to be pulled out in order to secure the uterus in the desired suspension. Then the abdomen is closed by a continuous peritoneal and muscular suture. The fixation of the ligaments is done in such a manner that the first three or four of the button sutures, right and left, with which the fascia is closed, grasp also the loops of ligament. In this manner the ligaments are fixed securely to the underside of the fascia, just as it is done in the Alexander-Adams operation. However, this ventrosuspension is not enough for the author, but he combines it with the abdominal vesicofixation. He used this method in 236 cases and shows that it fulfils to a large extent all demands that are made of an operation of this type. The danger of ileus is almost completely excluded, the position of the uterus obtained by it is practically physiologic, the result is usually permanent, vesical difficulties are practically absent, no disturbances result during delivery, and there are no complaints about difficulties at the sites of fixation. To be sure, the author admits that a certain percentage of failures must be counted on, but the percentage of failures in this operation is considerably below that of other interventions for the correction of positional abnormalities.

Sclerema Neonatorum and Its Treatment with Thyroxine.—Schulze says that the treatment of sclerema neonatorum is usually only symptomatic and consists in supplying warmth and in massaging the involved parts. He refrained from massage but gave especial attention to proper warming and general care. He found that only the milder cases responded to this treatment, and he decided to try thyroxine in extremely severe general scleredema. The intramuscular injection of thyroxine produced surprisingly favorable therapeutic results. The author mentions various theories regarding the pathogenesis of scleredema and stresses particularly Heymann's experimental demonstration of a disturbance in the

swelling conditions of the connective tissue. His own observations in the course of the thyroxine therapy indicated that the chief factor is a disturbance in the water economy of the skin and of the subcutaneous tissues, for the appearance and disappearance of the scleredema was accompanied by rapid changes in weight. The behavior of the urinary secretion in one case in which thyroxine was used makes the importance of the disturbance in the water exchange even clearer. The author thinks that thyroxine reduces the swelling of the sclerematous tissue. He is unable to say whether in addition to this a circulatory action plays a part.

Intracranial Hemorrhages in the New-Born. — Hollósi maintains that the etiology of intracranial hemorrhages is not uniform. It is probable that in some of the cases a constitutional abnormality is a predisposing factor to hemorrhage. The symptoms of the intracranial hemorrhages vary greatly; only in exceptional cases is it possible to localize the hemorrhage exactly. The treatment of intracranial hemorrhages should be symptomatic. It has not been definitely demonstrated whether the intracranial hemorrhages play a part in the development of diseases of the nervous system during later childhood.

Strahlentherapie, Berlin

56: 361-540 (July 18) 1936. Partial Index

Roentgen Treatment of Esophageal Carcinoma. A. Bernstein.—p. 366.
Near Roentgen Irradiation of Surgically Exposed Rectal Carcinomas. H. Chaoul.—p. 377.
Radium Treatment of Cervical Carcinoma with Aid of Exteriorization of Small Pelvis. F. Daels.—p. 380.
Roentgen Treatment of Lymphoblastic Sarcomas. R. Gauducheau.—p. 407.
Method of Irradiation of Cervical Carcinoma with High Voltage Apparatus. Gunsett.—p. 422.
*Roentgen Treatment of Actinomycosis. S. Keijser.—p. 449.
*Treatment and Prognosis of Leukemias, Particularly the Favorable Results in Lymphatic Leukemia Involving Only the Spleen. I. Solomon.—p. 526.

Roentgen Treatment of Actinomycosis.—According to Keijser, roentgen treatment is the method of choice in actinomycosis. He employed it in 101 cases in which the diagnosis had been microscopically verified. According to the localization of the lesion, he differentiates (1) the cervicofacial, inclusive of the cutaneous actinomycosis, (2) the abdominal and (3) the thoracic and other rare localizations. In his material the cervicofacial form was the most frequent (69 per cent). In this form he obtained especially favorable results with a combination of roentgen treatment and of medication with potassium iodide. The potassium iodide was usually administered in daily doses of 6 Gm. Incisions were made only in cases of abscess formation. Greater surgical interventions could be avoided. The number and size of the fields for irradiation as well as the focus-skin distance were individualized according to the extension and the localization of the lesion. Whenever possible, the disease focus was attacked from two or three sides. By the tangential direction of the rays, it was possible to protect the deeper lying tissues to a considerable extent. To be sure, in some cases, the irradiation of the deeper tissues could not be avoided, but even in these cases the author observed no injurious effects. The aim was always the homogeneous irradiation of the entire diseased area with from 75 to 85 per cent of the unit skin dose. The filter consisted of 0.5 mm. of copper and the tension was from 170 to 180 kilovolts. The depth action was adjusted by varying the focus-skin distance. This distance varied between 30 and 60 cm. In about 50 per cent of the patients a single series of irradiations was sufficient. If, after six or eight weeks, the improvement was not considerable, a new series was given. A third and fourth series became necessary in only a few of the cases. The combination roentgen and iodine treatment was successful in sixty-seven out of the sixty-nine cases with cervicofacial actinomycosis. The other two patients died. Of twenty-seven patients with an abdominal localization of the disorder, nine were cured. In some cases the author resorted to injections with fuadin and he thinks that the fuadin treatment of actinomycosis deserves further attention.

Roentgen Treatment of the Leukemias.—Solomon points out that in spite of the comparatively imperfect technic in the earlier years of the roentgen era favorable results of roentgenotherapy of leukemias were nevertheless reported as early as 1903 and 1905. However, the favorable results were only temporary: although the patients appeared healthy at first and were able to work again, there usually was a relapse after a short time. Renewed irradiations were usually not as effective as the first ones had been, and finally the disease became entirely refractory to rays. However, with the improvements in the roentgen technic, particularly with the harder rays and the more exact dosimetry, the number of entirely refractory cases of leukemia became lessened, although the ultimate prognosis seems not to have improved. The author shows that certain complications of leukemia likewise yield to roentgen therapy. He cites favorable results in leukemic priapism that had proved refractory to other measures and states that the albuminuria of patients with leukemia is responsive to roentgen irradiation. In view of the favorable effects of roentgen treatment on the leukemic albuminuria, it has been suggested that the kidneys be given a systematic irradiation before beginning the treatment of the spleen, bone marrow and glands. In some of the cases that were treated in this manner, the results seem to be better than before this method was adopted. Nearly all authors who employ roentgen treatment have abandoned the larger doses as well as the so-called intensive method and have returned to fractionation and irradiation in series. The number of series and the length of the intervals between them are determined on the basis of the blood status. The author points out that some authors have ascribed the refractoriness to treatment during the later stages of leukemia to the fact that local irradiation is insufficient. Consequently, they have attempted to add general to the local irradiations. However, it was found that the total irradiation likewise failed to effect a permanent cure. Nevertheless, it has certain advantages and is particularly advisable in cases which have such a multiplicity of foci that a local treatment is impossible. It can also be tried in cases in which the local treatment fails. The author calls attention to the comparatively rare form of lymphatic leukemia that is restricted to the spleen. He gives detailed histories of two such cases, in which roentgen irradiation proved especially valuable. The two cases are noteworthy for long survival and for the return to normal on the part of the blood picture.

Wiener klinische Wochenschrift, Vienna

35: 1061-1084 (Aug. 28) 1936

Hypothalamus and Central Nervous Regulation of Blood Pressure. A. van Bogaert.—p. 1061.
Anatomic Foundations for Treatment of Thrombosis of Pelvic Veins and of Femoral Vein. E. Friedländer.—p. 1067.
Changes in Psychotherapy. W. Stekel.—p. 1071.
*Changes in Metabolic Conditions of Diabetic Patients in Presence of Malignant Tumors. Cornelia Wetzler-Ligeti and Mania Köstenblatt.—p. 1074.
Gynecomastia and Cirrhosis of Liver: Case. R. Riebler.—p. 1076.
Isolated Bilateral Lesion of Superior Cervical Ganglion: Case. K. Kahn.—p. 1077.

Metabolism of Diabetic Patients Having Malignant Tumors.—Wetzler-Ligeti and Köstenblatt cite investigators who observed that the glycosuria of diabetic patients decreases when a malignant tumor develops and that the sugar content of the blood is increased in patients with carcinoma. They state that they themselves investigated the sugar content of the blood of twenty patients with carcinoma and found thirteen with hyperglycemia, although neither the patients themselves nor their families gave a history of diabetes. The authors also call attention to the fact that several investigators made the observation that in sugar tolerance tests the blood sugar curves of carcinoma patients resemble those of diabetic patients. They themselves observed in the course of several years on a large material of diabetic patients that, if a diabetic patient develops a malignant tumor, the glycosuria disappears while the glycemia remains comparatively high. They made this observation in eleven cases. It appeared that the site of the tumor was of no importance. The authors' material consisted of one pulmonary tumor, one ovarian carcinoma, one hypernephroma, one carcinoma each of the colon and of the gallbladder and three carcinomas each of the stomach and of the pancreas. In discussing the pathogenesis of the disordered carbohydrate metabolism in patients with malignant tumors, the authors suggest that a disturbance in the oxygen supply of the organism might play a part.

Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

36: 323-644 (Nos. 143-144) 1936. Partial Index

Extreme Types of Variants of Venous System: Their Genesis. V. N. Shevkunenko and A. N. Maksimenkov.—p. 380.
New Orientation in Treatment and Prophylaxis of Inflammatory Processes. A. V. Vishnevskiy.—p. 386.
Cancer of Tongue: Its Treatment. N. N. Petrov.—p. 411.
Gastric Cancer Considered from Surgical Point of View. A. Melnikov and N. Mikhedko.—p. 425.
*Treatment of Severe Gastroduodenal Hemorrhage. A. M. Zabludovskiy and B. P. Abramson.—p. 472.
Operation for Cancer of the Rectum Without Formation of Iliac Anus. S. I. Spasokukotskiy.—p. 489.

Treatment of Gastroduodenal Hemorrhage.—According to Zabludovskiy and Abramson, severe hemorrhage from gastric or duodenal ulcer occurs with much greater frequency in the male patients than in the female. Of the twenty-five cases treated by them, twenty-one were in male patients. They urge that patients be referred to the surgical service at the first signs of bleeding rather than in the stage of a life-threatening hemorrhage. Direct evidence of bleeding, such as a tarry stool or blood in the vomitus, may be absent. These signs are not infrequently preceded by a general weakness to the point of fainting, pallor and a weak pulse. There is a tendency to recurrence on the part of those who had one severe hemorrhage. The authors therefore feel that in the presence of definite evidence of ulceration such patients should be submitted to an operative intervention during the quiescent period. In their experience, blood transfusion proved to be the most effective means of arresting gastric or duodenal bleeding. It should, however, be given in the early stage and not as a last resort. Patients rendered acutely anemic are poor surgical risks. They can, however, be saved as a rule, by a transfusion of from 150 to 200 cc. of blood. Fresh or preserved blood was more efficacious than plasma. The aim of transfusing small quantities of blood is to arrest bleeding rather than to treat the acute anemia. The latter is to be met by a transfusion of from 350 to 400 cc. of blood, not earlier than from ten to fourteen days after the arrest of the hemorrhage, in order to avoid raising the blood pressure. Blood transfusion, however, is not invariably successful. A certain number of patients, particularly those bleeding from a large callous ulcer, will bleed to death. The older patients exhibit less tendency to stop bleeding than the young, presumably because of sclerotic changes in their blood vessels. Operative indication, therefore, is more common in patients past the age of 40. Palliative operations, such as ligation of afferent blood vessels, suture of the ulcer and cauterization of the ulcer, are not effective, and least of all is the operation of gastro-enterostomy. Though hazardous for the patient, the most effective procedure is partial gastric resection. The latter must always be preceded by a transfusion of from 350 to 400 cc. of blood. The most important element in the treatment is the correct estimation of the limitations of the conservative treatment (blood transfusion) and the timely choice for operative intervention.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80: 3989-4108 (Sept. 5) 1936

Diagnosis and Treatment of Some Bladder Disorders. W. F. Suermondt.—p. 3990.
Is Gastric Ulcer Increasing? E. Hammer.—p. 3997.
*Symmetrical Arthropathies in Addison's Disease. J. C. J. Burkens.—p. 4005.
Hereditary Factors Determining the Predisposition to Mammary Cancer in the Mouse. R. Korteweg.—p. 4008.
Clinical Significance of Electrocardiogram in Hypertension. C. L. C. van Nieuwenhuizen and H. A. P. Hartog.—p. 4015.

Symmetrical Arthropathies in Addison's Disease.—Burkens reports that, although patients suffering from Addison's disease often complain of arthralgias and neuralgias, it is practically never possible to find disturbances of the joints, such as limitation of movement or crepitation, and the roentgenograms seem to be normal. Curschmann's is the only known communication that describes four cases in which objective disturbances were found. The author gives the histories of three patients with Addison's disease who had also pulmonary tuberculosis and of whom the first presented calcification of the adrenals and progressive symmetrical omarthritis with severe limitation of shoulder movements, the second showed progressive and symmetrical omarthritis, coxarthritis and gonarthritis with severe limitation of movements of these joints and the third had progressive and symmetrical inflammation of the shoulder and elbow joints with severe limitation of movement of these joints. All patients presented some degree of atrophy of the muscles connected with the interested joints. The roentgenogram recalled that of rheumatoid arthritis. Periarthritis was present in high degree. The occurrence and simultaneous development of these disturbances with Addison's disease and their symmetrical character make it extremely probable that this is no coincidence but that there is a relation of cause to effect between Addison's disease and this kind of arthropathy.

Hospitalstidende, Copenhagen

79: 757-784 (July 28) 1936

Postoperative Tetany. A. Lachmann.—p. 757.
Exogenic Etiologic Factors in Manic-Depressive Psychosis, with Especial Reference to Chronic Epidemic Encephalitis. P. Dickmeiss.—p. 774.
*Monilethrix (Aplasia Pilorum Intermittens or Moniliforme). E. Gottlieb.—p. 781.

Monilethrix.—Gottlieb describes four cases, in siblings, aged from 10 to 21, otherwise apparently normal both physically and mentally. The anomaly, in more or less marked degree, has been traced back through five generations of the family and seems to be transmitted as a dominant characteristic. He says that, according to van Leeuwen and others, the new hair which appears after roentgen epilation or epilation with thallium is normal at the start and by repeated roentgen epilation after the hair has again become deformed a somewhat longer effect has been maintained each time.

79: 813-840 (Aug. 11) 1936

Periarthritis of Humerus. H. Buch.—p. 815.
*Primary Pulmonary Carcinomas. E. B. Vosbein.—p. 827.
Changes in Cerebrospinal Fluid in Psoriasis and Normal Values for Albumin Content of Cerebrospinal Fluid. A. V. Neel.—p. 836.

Primary Pulmonary Carcinomas.—Vosbein tabulates the cases of six men and eleven woman who were treated at the Aarhus district hospital from 1920 to 1935. An increase in the number of cases during the last five years is noted. In eleven of the thirteen cases in which necropsy was done there was a tumor of nodular massive form, in four cases believed to have originated from the main bronchus, in two from the large bronchi and in five with uncertain point of origin; in two cases there were tumors of disseminated medullary form. Microscopic examination in eight cases showed typical bronchial carcinoma. Sooner or later in the course all the patients had pulmonary symptoms. The duration of the disease was from one and a half months to two and a half years, or an average of nine months.

Ugeskrift for Læger, Copenhagen

98: 755-776 (Aug. 13) 1936

Urethral Resection of Prostate Without Electricity. I. Collin.—p. 755
Pathogenesis of Hysterical Cutaneous Disturbances. H. Haxthausen.—p. 758.
*Lymphogranulomatosis (Sternberg). O. Raagaard.—p. 7[illegible].
Serodiagnosis of Syphilis in Primary and Secondary Stage. M. Jersild.—p. 765.

Lymphogranulomatosis.—Of Raagaard's nineteen cases in which treatment has been given since 1922, eighteen were verified histologically. There were twelve male and seven female patients, aged from 11 to 62. In fifteen patients the duration from histologic diagnosis to death was from one to sixty-four months, or an average of about sixteen months. All the patients had a chronic course. The primary localization seemed to be in the glands of the neck in seven, in the axillary glands in three, in the inguinal-crural glands, which, he says, is rare, in three, in the abdomen in two, in the skin in one, in the mediastinal glands in four and in the lungs in one. The glands of the neck were affected in all but one. Enlargement of the spleen was found in only four cases. Pain was a prominent symptom in the material. All the patients were given roentgen treatment of the affected regions. Roentgen treatment is believed to be of great value in allaying pain. In one of the three living patients, a man aged 30, the duration of the disease has been six years. The disorder in this instance was mainly and has in the last years apparently been exclusively localized in the mediastinal glands. In spite of continued recurrences the effect of roentgen treatment seems undiminished; close series appear to be more effective than more scattered treatment. The patient is now practically without subjective symptoms.